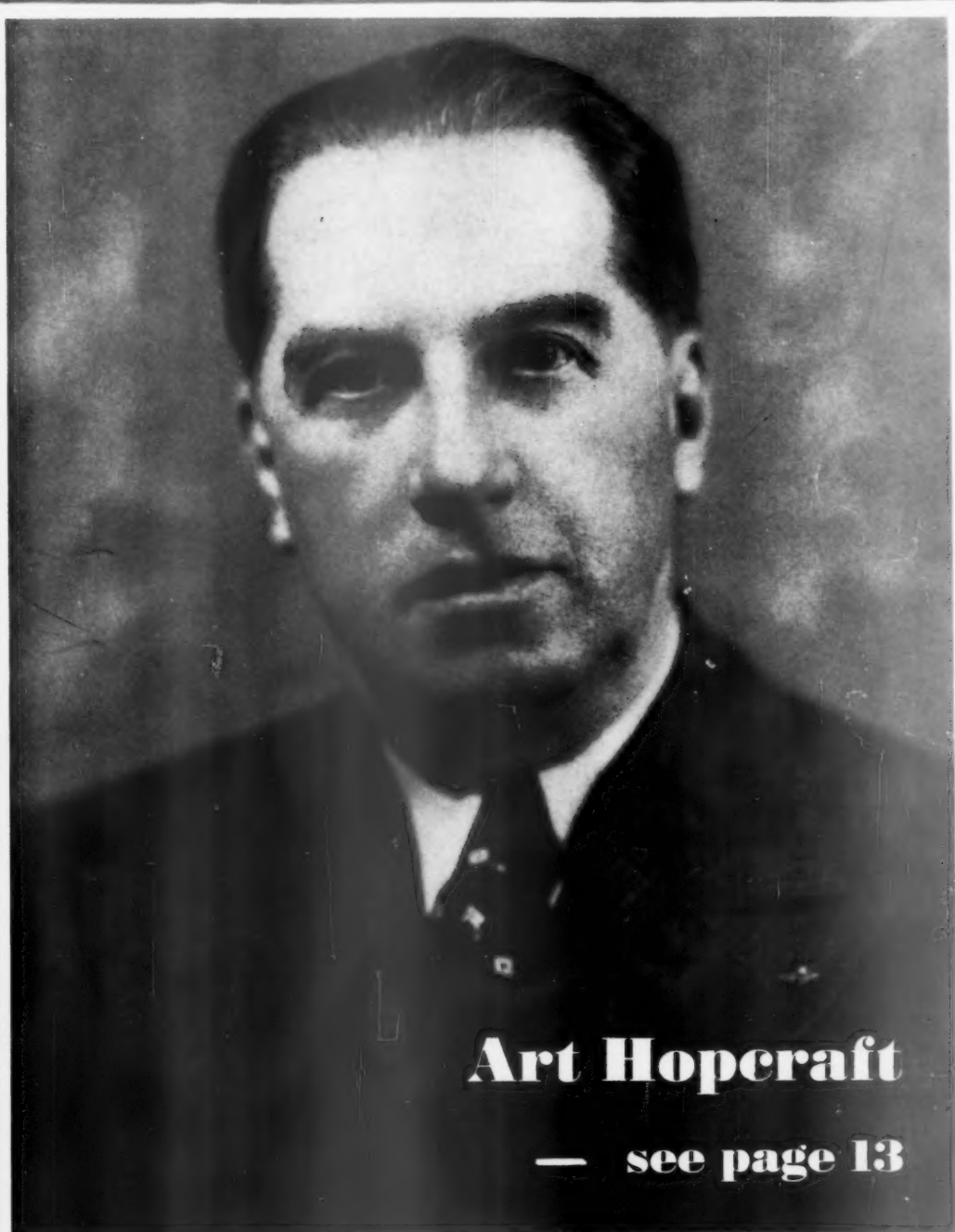


APRIL 4 1937

P

URCHASING

CONSOLIDATED WITH • *The Executive* **PURCHASER**



Art Hopcraft

— see page 13

Vol. V No. 4

APRIL 1937



HASING

REPUBLIC
STEEL

BERLOY

NILES
STEEL PRODUCTS

**FAMILIARITY
BREEDS
CONTENT!**

TRUSCON

ELECTRUNITE
REG. U.S. PAT. OFF.
STEEL AND TUBES ELECTRIC WELD
TUBING

DS

● The purchasing agent who buys steels and steel products bearing the name of Republic or one of its subsidiaries knows that they satisfy everyone in his organization.

The purchasing agent who has yet to buy will find ready acceptance for these products among executives, engineers, workmen and his company's salesmen. They know these products through reading Republic advertising. They will know them still better when they use or sell products made of them—and familiarity with Republic products breeds content.

Republic Steel
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AND SUBSIDIARIES
GENERAL OFFICES . . . CLEVELAND, OHIO

BERGER MANUFACTURING CO., CANTON, O.
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STEEL AND TUBES, INC., CLEVELAND, OHIO
TRUSCON STEEL CO., YOUNGSTOWN, OHIO
UNION DRAWN STEEL CO., MASSILLON, OHIO

When writing Republic Steel Corp. (or Steel and Tubes, Inc.) for further information, please address Department EP



A CHEST PROTECTOR ON THE AUTO SKOOTER STEPPED UP SALES AND SAFETY

A typical example of Goodrich development in rubber

● Sales were down at the Auto-Skooter booths in amusement parks. The modern youngster demanded more speed and thrill when he sent his miniature electric car hurtling into his fellow riders.

But allowable impact was limited by strength of the huge steel spring around each car.

Steel could stand no more—but rubber could. So the 1936 model of skooter is equipped not with steel but with rubber—a wide strip of it—which permits greater speed and heavier impacts with safety to equipment

and delight to the young customers.

One more proof that rubber, as Goodrich knows how to compound it, can often stand more punishment than the toughest steel.

It was ability to take punishment that made possible rubber lining for ore chutes (Goodrich rubber in that service often outlasts steel 10 to 1), rubber covered sand blast helmets (steel wore out in a few hours, Goodrich rubber lasts for months), rubber ball mill linings that outlast manganese steel, rubber heels that outwear leather,

rubber bearings that outlive bronze.

Rubber, as Goodrich can make it today, is not always the product you used to know. It is a *new material* with a score of new improvements which make Goodrich belting, hose, packing last longer, operate better, and so cost less. The B. F. Goodrich Co., Mechanical Rubber Goods Division, Akron, Ohio.

Goodrich

ALL *products* *problems* IN RUBBER

PURCHASING

Established 1915 as "The Purchasing Agent"
Consolidated with "The Executive Purchaser"

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STUART F. HEINRITZ.....Editor

Advertising Representatives
GEO. B. HOWARTH,
11 West 42nd St., New York
H. N. PICKETT,
2843 Hampton Road, Cleveland
D. N. CORTRIGHT,
209 Walnut St., Jenkintown, Pa.

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VOLUME V
NUMBER 4

April 1937

15c A COPY
\$1.00 A YEAR

PAGE 2

PURCHASING

Long Distance Rate Reductions bring far-away friends NEARER and NEARER

A SERIES of rate reductions from 1926 to 1937 has substantially cut the cost of Long Distance telephoning. These reductions have been made in accordance with Bell System policy to reduce Long Distance rates whenever improvements in telephony and the volume of business permit.

Today's low Long Distance rates make it easy to keep in touch with out-of-town friends and relatives . . . frequently, pleasantly. They make it easy to do business across the miles with branches, customers and prospects . . . quickly, personally.

Below are rates for 3-minute daytime calls between representative cities. . . . Call some one far away today, and find how much genuine pleasure Long Distance can bring you . . . at low cost.

HOW LONG DISTANCE RATES HAVE BEEN CUT
AS THE RESULT OF 8 REDUCTIONS IN RECENT YEARS:

RATES FOR 3-MINUTE DAYTIME CALLS *		Station-to-Station		Person-to-Person	
From	To	January 15, 1926	Jan. 15, 1937	January 15, 1926	Jan. 15, 1937
Baltimore	Philadelphia	\$.65	\$.50	\$.80	\$.70
Cincinnati	Detroit	1.55	.90	1.90	1.25
Buffalo	Toledo	1.70	.95	2.10	1.30
Boston	Washington	2.40	1.25	3.00	1.65
Chicago	Little Rock	3.40	1.65	4.25	2.20
Atlanta	Kansas City	4.30	2.00	5.35	2.65
Denver	Seattle	6.60	3.00	8.25	4.00
Dallas	New York	8.80	4.00	11.00	5.25
Chicago	San Francisco	11.90	5.00	14.85	6.75
New York	Los Angeles	15.65	6.25	19.55	8.50

* Night and all-day Sunday rates are still lower.



DISC WHEELS . . .

For All Types of Discs Grinders
and All Kinds of Work

Solid and Segmental Types

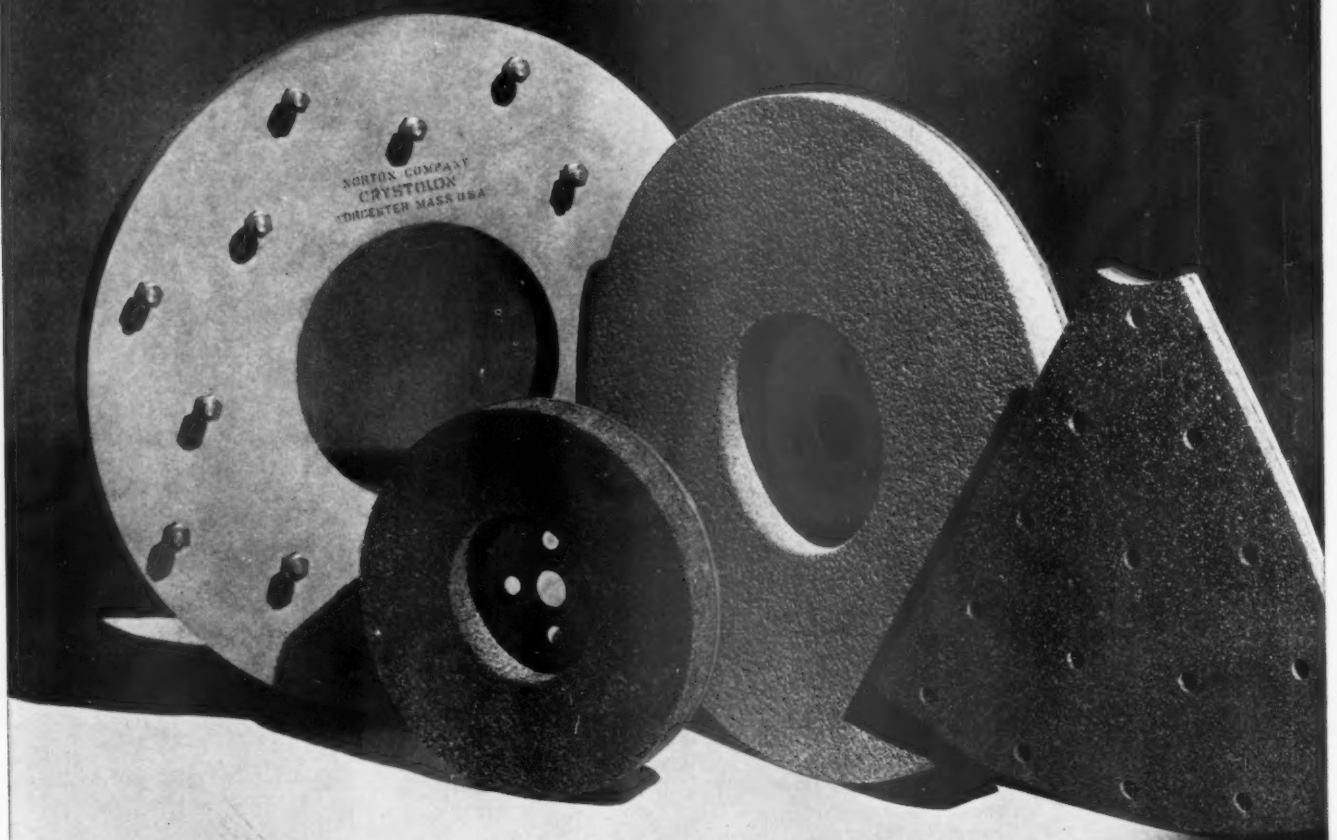
Plate and Lug Mountings

Alundum, 19 Alundum, 38 Alundum and
Crystolon Abrasives

Vitrified, Silicate, Resinoid and Shellac
Bonds—A Wide Variety of Grains,
Grades, and Structures

If you are using discs or have a surfacing job where
discs can be used, Norton engineers will be glad to
show you how to cut costs. The complete line of
Norton Discs meets all requirements

NORTON COMPANY, Worcester, Mass.



» **NORTON ABRASIVES** «

*** YOUR LETTERHEAD IS THE VOICE OF YOUR BUSINESS**



WHAT EFFECT A GOOD VOICE? Listening to the radio . . . speaking over the telephone . . . attending the pictures . . . we have all become keenly aware of the effect and the value of a good voice. The words, of course, are important, the music pleasant, but it is the voice that wins our remembrance and our response. • So it is with the letters you write daily. Your letters are your words, but they are carried by paper in this stead, acting as your voice. And how does that voice affect those who receive? Does it speak with clarity and assurance, with naturalness and easy grace? It can. It will, if you choose your paper as carefully as you choose your words. As with words, there is a large variety of papers, but those that will serve you best in your business and personal correspondence are *papers made from rags*. They are crisp and durable and have a ring of quality that will put a new note of confidence and distinction into the voice of your letters.

RAG CONTENT PAPER MANUFACTURERS

122 EAST 42nd STREET, NEW YORK

FINE PAPERS FOR LETTERHEADS, LEDGERS AND INDEX RECORDS.

THE BEST PAPERS ARE MADE FROM RAGS

BUY WIPING CLOTHS BY SPECIFICATION

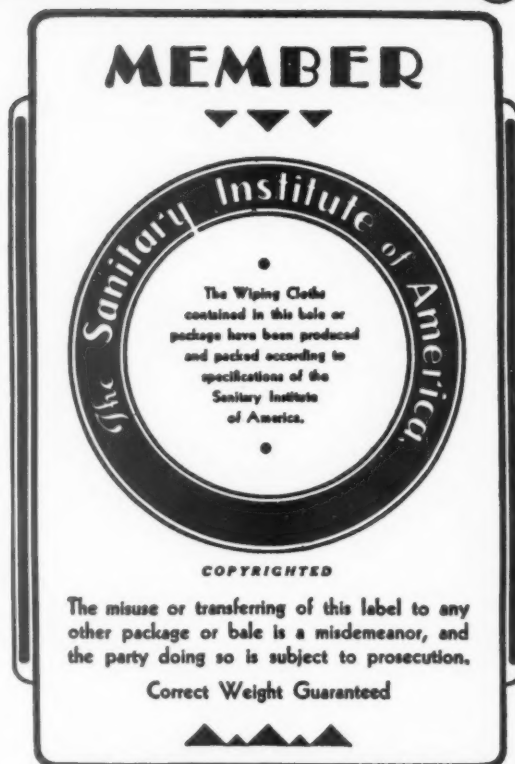
LOOK for THIS LABEL

TODAY no buyer would phone a coal yard and say, "Send us ten tons of coal." He wouldn't do it because if he did, he wouldn't know what he was going to get. Instead, he orders "Ten tons of Pocohontas," and further qualifies his requisition as "Mine run," "Pea," "Nut," "Egg," or "Lump." Each of these terms defines a definite grade and in one word establishes a warranty of a definite quality between seller and buyer.

Similarly—Today no progressive Purchaser requisitions "A thousand pounds of wiping rags"—and for the same reasons which guide the coal buyer. Instead, the purchaser will call an accredited member of the Sanitary Institute of America and order "Sterilized Wiping Cloths"—further qualifying them as No. 1 Colored, No. 2 Colored, No. 1 White, No. 2 White, No. 1 Underwear, No. 2 Underwear, etc.

Each of these terms defines a definite standard quality—guaranteeing not only sterilization, but also definite minimum specifications for size, color, and texture of fabric. As an example the Institute's specifications for No. 1 Colored Wiping Cloths, are reproduced on this page.

Institute specifications have eliminated guesswork from the buying of wiping cloths. Grade for grade, Institute labelled products cost no more than unbranded wipers. Buy wipers by specification—Demand the Sanitary Institute Label on every bale.



SPECIFICATIONS FOR INSTITUTE LABELLED NO. 1 COLORED WIPING CLOTHS

STERILIZATION: Thoroughly washed and boiled in a solution containing pure soap—76% caustic and/or chloride of lime and dried in an average temperature in excess of 212 degrees Fahrenheit.

GRADING: To consist of light-weight cotton, colored wiping cloths. To include sheeting, muslin, nainsook, calico, gingham, percale, shirting or garments made thereof. Should be free of materials such as bath robes, blankets, bedspreads, duck, tapestry, black rags, denim, towelling, heavy khaki, heavy ticking, poplin, sateen or lustrous fabrics. Should be free of materials that are oil, ink or paint stained. The minimum size of cloths should have an area of not less than 2 square feet and a minimum width of 12 inches.

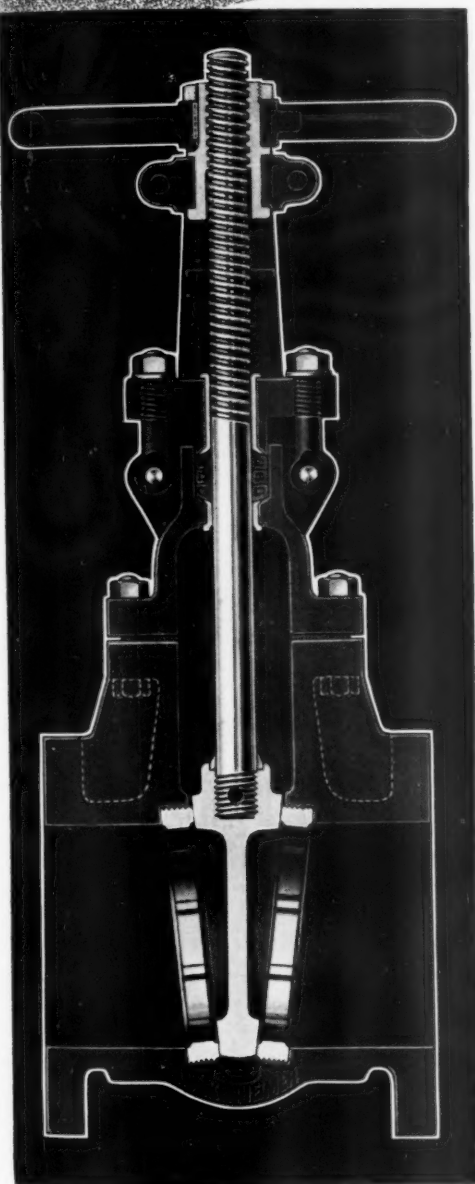
THIS ADVERTISEMENT SPONSORED BY THE FOLLOWING MEMBERS OF THE SANITARY INSTITUTE OF AMERICA

BROOKLYN—American Sanitary Rag Co., 600 Degraw St.
BROOKLYN—Delia Waste Products Corp., 1557-61 Dean St.
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*For complete Institute specifications write any member or
The Sanitary Institute of America, 10 S. LaSalle Street, Chicago*

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POINTS TO LOOK FOR IN IRON BODY GATE VALVES



When you buy Iron Body Gates you can forestall much trouble and expense by insisting that they embody the following important features:

Sound tough castings that will safely withstand operating pressures and temperatures.

Uniform interchangeability of parts, so that any replacement or repair part will be exactly the same size as that which is to be renewed.

Disc of solid construction that will not distort under temperature variations.

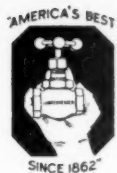
Heavy renewable bronze seat rings with strong deep-cut threads to insure tight seating in the body without springing.

An ample number of substantial lugs on seat rings to facilitate renewal.

Bronze bushings between the bronze stem and iron parts of valve, to prevent corrodible contact and consequent scoring of stem and packing, which causes leaky stuffing boxes.

The disc so perfectly guided that it rides straight and true to its seat without chattering or dragging on seat rings, thus insuring tight closure and longer seat and disc life. To insure this perfect guiding, *both the grooves in the disc and the ribs in the body must be accurately machined.*

The sure way for you to obtain *all* these service-giving and money-saving features is to specify Lunkenheimer Iron Body Gate Valves. By their every-day efficient and satisfactory performance they effect substantial reductions in maintenance expense and valve costs.



Available through Lunkenheimer distributors in all industrial centers.

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"QUALITY"
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NEW YORK CHICAGO
BOSTON PHILADELPHIA

EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

Buy QUALITY—Buy LUNKENHEIMER

plainly speaking - -

- MUCH MONEY WILL BE MADE—or LOST—during the critical days directly ahead, depending upon the purchasing agent's ability to anticipate inevitable commodity price changes.
- CONDITIONS, UNPRECEDENTED in their significance at home and abroad are having a profound effect upon the price movements in all basic materials.
- THE STAFF OF THE MCGILL Commodity Service is now serving hundreds of purchasing agents—supplying them with dependable price forecasts upon which they can safely build their inventory policy.
- WHY NOT BECOME ACQUAINTED with this service which has won for itself so high a regard for dependability and accuracy with an ever-increasing clientele?
- JUST FILL IN YOUR FORWARDING address on the coupon below and mail to us. By return mail we will send you a copy of our current 10-page monthly bulletin containing individual analyses and price forecasts for 72 basic materials. Also—a copy of our recent descriptive folder.

McGill Commodity Service, Inc.

Taylor Bldg., Auburndale, Mass.

Gentlemen:

Please send me a copy of the current issue of your 10-page "Commodity Analysis and Price Forecast" and the descriptive folder mentioned above.



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Company.....

Street & No.....

City.....State.....

IS HE CAREFUL?



Addresses 100 Competitors in His Best Clothes Addresses 1000 Customers on Cheap Paper

AT ATLANTIC CITY this manufacturer addressed a hundred members of his trade association. To live up to the dignity and standing of his company, he appeared in new shoes, a custom shirt, and a perfectly fitting new hand-tailored suit.

Every day this man's company addresses (on paper) more than a thousand customers and prospects. Yet he never stops to notice that his paper and envelopes are of the very cheapest, least impressive character that can be bought.

If you are in business or professional life fine paper is important to you. It supplies atmosphere. Your customers feel this atmosphere. What they feel, they believe.

Fortunately, the cost of even Strathmore's fine

papers is negligible. You can have the most widely used rag-content bond letter paper in America—STRATHMORE HIGHWAY BOND—for less than 1 per cent more, per complete letter, than the cheapest paper you might buy. Even if you specify as fine a bond paper as can be made—STRATHMORE PARCHMENT—the added cost, per letter, will be but 2.9%.

We will gladly send you the Strathmore Letter-Cost Analysis audited by Certified Public Accountants. With this useful analysis we will include liberal samples of Strathmore papers and envelopes-to-match for your use. Write for P-2 Samples today to Strathmore Paper Company, West Springfield, Massachusetts. (Strathmore envelopes-to-match are made by Old Colony Envelope Company, Westfield, Mass.)



STRATHMORE

Maker of Fine Papers

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**STEEL OF ALL SHAPES, SIZES AND KINDS
READY FOR IMMEDIATE SHIPMENT**

Here is steel that you can depend on to maintain your production schedules—thousands and thousands of tons ready to use. You can draw on these stocks with full assurance that the exact grade of steel, in the right size and finish will be shipped at once.

There are ten Ryerson plants strategically located for quick delivery throughout the principal industrial areas. When you need steel, draw on the one nearest you.

If you do not have the current Ryerson Stock List, we will be glad to send it.

Joseph T. Ryerson & Son Inc., Chicago, Milwaukee, St. Louis, Cleveland, Cincinnati,
Detroit, Buffalo, Boston, Philadelphia, Jersey City

Ryerson Stocks Include:

Beams and Heavy Structurals
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Rails, Splices, Spikes, Bolts, etc.
Plates—Sheets
Strip Steel, Flat Wire, Etc.
Stainless Steel
Hot Rolled Bars—Bands and Hoops
Cold Finished Shafting and Screw
Stock
Extra Wide Cold Finished Flats
Alloy Steels—Tool Steels
Heat Treated Alloy Steel Bars
Boiler Tubes and Fittings
Welding Rod—Mechanical Tubing
Rivets, Bolts, Nuts, Washers, Etc.
Reinforcing Bars
Babbitt Metal and Solder

RYERSON

A Practical Program

THE purchasing job, like every other phase of today's complex business organization, has many ramifications, but essentially it deals with the very concrete, material side of industry. Viewed from any angle, the unifying principle of the buyer's activity, the point around which all of his acts and efforts revolve, is goods—goods that go into his company's product, goods that are needed in the operation of plant and office, goods that are eventually translated into employment, payrolls, profits, and useful service.

It follows, of course, that knowledge of materials is a basic qualification for competent purchasing. Such knowledge must embrace the technical side, including composition, properties, methods of production. It must embrace the field of application, including suitability, workability, saleability. It must embrace the commercial side, including economical quantities for manufacture, shipment and storage, availability, seasonal characteristics of the market, costs, value, and the current ratios of supply and demand. And all of this must be coordinated with the policies and requirements of the buyer's own organization.

Going into a period of exceptional industrial activity, and exceptional acceleration, the materials problem has been complicated by many new considerations. Technical developments (largely based on researches made during the depression) have been rapid, changing the complexion of whole industries. New concepts of design have changed requirements. Rising prices dictate extended coverage in some cases, and in others the situation calls for a thorough exploration of the possibilities of substitution. Added to all this, basic production has not yet been completely geared to the new tempo, so that there is a shortage of immediate supplies, commanding substantial price premiums.

In view of this situation, the decision of the N.A.P.A. program committee has been exceedingly wise and far-sighted, in building the convention sessions around the basic topic of commodities and their physical, technical, and economic status. The time for generalization is past. Today's market calls for practical and specific information.

Pittsburgh is an ideal location for such a study. It is a center of important and highly diversified industry—coal and coke, steel, aluminum, glass, electrical products, and heavy machinery, among others. At the current writing it leads the country in productive activity, attaining a tonnage output that gives definite meaning and substance to theoretical estimates of capacity. Its manufacturers are progressive—leaders in research, advocates of modernization, exponents of the application of the most advanced processes and equipment. All this wealth of practical demonstration is offered to N.A.P.A. members attending next month's meeting.

Furthermore, the central location of the convention city presages a large and representative gathering, which will make for an unusually valuable interchange of experience, practical opinion, and professional thought.

All of which leads to but one conclusion for every purchasing man who takes his job and his profession seriously: Plan now to be present at the 22nd annual Convention and Inform-a-show at Pittsburgh, May 24-27, to bring your questions, to take an active part in its sessions, and to equip yourself for efficient purchasing in the critical months ahead.

STUART F. HEINRITZ, EDITOR



Buyer: *"I just played a good April Fool joke on that salesman—gave him a signed order, but without filling in the quantity or price."*

SILHOUETTE STUDIES

13: Arthur George Hopcraft

IF YOU HAVE attended any purchasing agents' banquet, executive night or other special affair within a 200-mile radius of Cleveland during the past dozen years, the chances are better than even that you've seen Art Hopcraft in action. He's the big, friendly, black-haired fellow in the dinner jacket, who introduces the featured orators of the occasion. He has done it for governors, and all the way down to editors. And when it's all over, you're quite likely to remember the toastmaster's brief, well chosen remarks more vividly and pleasantly than the main address. He's the fellow who leans up to the microphone when a restless audience begins to sidle toward the exits, and with an apt story brings them back to their seats eager for more. He's the fellow who breaks the tension of an acrimonious debate with a pat summary of the point at issue, in human terms. He's the chairman who keeps things running smoothly and on schedule in spite of last minute changes and delays.

A part of this ability, the trigger-quick wit and the endless resource of illustration, is an inherent native talent. Art's mother had that faculty before him, and his daughter can hold her own with Dad. But it's far more than a "gift"—for he has spent a lifetime in painstaking cultivation of his natural ability.

ART LIKES to tell a story—not only for its entertainment value, but because it is his natural means of expression in putting over a serious point or to establish a state of mind among his listeners. Called upon recently to discuss purchasing in a course of vocational talks before the graduating class of engineers at Case School of Applied Science, he did it in his own way by a series of experience stories. College officials later declared that no other lecturer in all

their distinguished list had held the attention of the class so well, or had imparted his message so clearly.

As a young man, he was active in a "Speakers Club" of junior business men who invited a professor from Western Reserve University to coach and criticize them in extemporaneous discussion. Since that time he has never ceased to study and analyze the effect of stories upon an audience and to perfect his own technique in the telling. He has filed away in memory literally hundreds of pertinent anecdotes for future use, but never without first reconstructing each one to be sure of bringing out its full value, or without so clarifying the point and setting up an association with the central topic that it will come instantly to mind at just the proper moment.

That spontaneity is one of the secrets of his effectiveness—no stereotyped stories jotted down for an occasion. Many experienced speakers would shrink from dependence on that method, but it has never yet let Hopcraft down.

Of course there is no place for a pointless yarn in such a repertoire. Nor is there any place for an off-color story. One of Art's rules is never to use an anecdote that could not be repeated in mixed company. That principle, he concedes, allows him far more leeway in the choice of material today than even the stag smoker standards of ten years ago. But the real point is this—he is, first and always, a gentleman.

Another of his principles is never to repeat the same story to the same audience—and he is generally asked to come back a second, or a tenth, time. This has resulted in the compilation of a unique file, listing the stories he has told in public. Many a speaker would give his eye teeth for access to such a treasury of illustration, but Art uses it only to remind himself of the stories *not* to tell

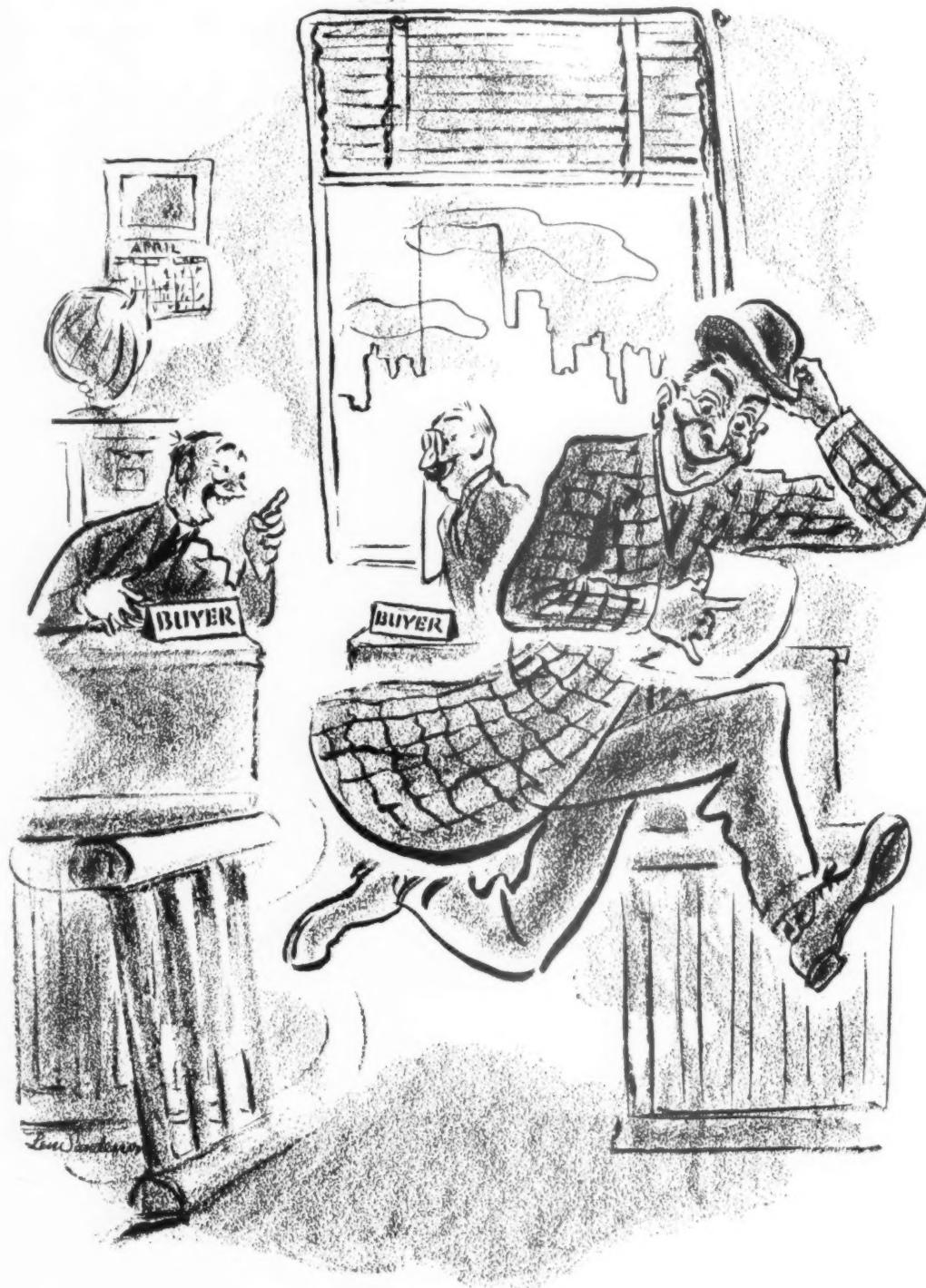
before a given audience. At last reports there were more than five hundred cards in the file.

ARTHUR HOPCRAFT was born in Cleveland on October 7, 1885, the oldest of eight children. It was a lively, happy family. His Scotch-Irish parents had come to the city a few years earlier, from England. His father, a stone cutter by trade, found plenty of work in the rapidly growing city; several of the older buildings around the Public Square still bear witness to the skill of his handicraft. But just when everything seemed to be clear sailing ahead, tragedy struck. A long and expensive siege of illness drained the family resources. Arthur, just turned thirteen and graduated from public school, joined the ranks of the breadwinners.

His first job was with the Otis Steel Company, at twenty-five dollars a month and lunches—and the lunches were not the least consideration. Morale was high, for courage was a family characteristic, plus a philosophical outlook and a deep faith that all things would work out for the best. In spite of more than a normal share of the "times that try men's souls" that faith has continued to the present day.

Two years with Otis were followed by five at the William Bingham Company. By 1907 he was established as timekeeper at the American Steel and Wire Company and had set up his own home. Six months later he was laid off, a victim of the times. But that apparently disastrous circumstance served to guide him into what was destined to be his life work, for his next position was as Assistant Purchasing Agent for the Peerless Motor Car Company.

HE BECAME Purchasing Agent for Ferro Machine and Foundry Company in 1914. Shortly after



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HE BECAME Purchasing Agent for Ferro Machine and Foundry Company in 1914. Shortly after

the Cleveland Purchasing Agents' Association was organized, he became a member, and immediately took an active part in the work. The friendships and contacts resulting from that association have profoundly influenced his later career.

Having a natural aptitude for organization work, he soon found himself serving on important committees, drafted as secretary, vice president, and then for two terms as president of the local group. He confesses to a great thrill and constant wonder at the fine cooperation he has received in every new assignment undertaken. To any one else the answer is obvious in his willingness to take responsibility, his executive leadership and the ability to inspire that cooperation. If any specific example is needed to illustrate the truth that the rewards of association work are in proportion to one's personal contribution, Hopcraft is your man.

In national association affairs, his interest was equally keen. He was present at the second convention of N.A.P.A. in Pittsburgh, 1917, and

has missed only three of the annual gatherings in all the subsequent years. His acquaintance broadened to a national scale. But his emergence as a figure of outstanding importance in N.A.P.A. ranks really dates from the Cleveland convention of 1923, which he headed as general chairman. That's another of his successful committee jobs for which he gives all credit to the amazing cooperation of his associates—an explanation which does not take into account his own tireless traveling to a dozen cities working up enthusiasm for the meeting, or the clocklike precision with which the arrangements were carried through.

IT WAS A FOREGONE conclusion after the convention that Hopcraft would be chosen for the national executive committee. Nor was it wholly surprising that he should be elected to the presidency at Boston, in his first term of national service, the youngest man to be honored by that office up to that time.

His administration was notable for sound development in the basic organization plan. The nine geographical districts were set up, providing a workable arrangement for correlating local and national interests, and the finances were strengthened by establishing the present reserve fund. Thanks to the generous and sympathetic attitude of the Ferro executives, he was able to spend nearly half his time in the field, personally cementing national good will in outlying and hitherto neglected districts and, with Russell Forbes, promoting an unprecedented expansion through the formation of new local groups in logical industrial centers.

It was during this period that the association established a very close relationship with the United States Department of Commerce and was called upon to cooperate in a number of its major projects. One of Hopcraft's most cherished memories is his committee service, representing N.A.P.A., with the then Secretary of Commerce, Herbert Hoover. Most of us picture Hoover in office as a sober, unsmiling man, but Art re-

members him laughing out loud on at least one occasion. He had outlined his program for reforestation, and turned to his committee: "Mr. Hopcraft, as president of the National Association of Purchasing Agents, what do you believe your organization can do to help us in this plan and save the trees in this country?" Which was Art's cue for an apt anecdote leading up to the gag line, "Well, Mister, I once shot a woodpecker."

CITY MANAGER GOVERNMENT came to Cleveland in 1927. Municipal purchasing was in disrepute owing to a food scandal at the City Hospital. Hopcraft was asked to take over the job. The whole matter had in fact been arranged beforehand without his knowledge—the unqualified endorsement of the Cleveland Association officers, who had been asked to make a recommendation, and a release from his commercial position on the grounds of an urgent public need. He was virtually drafted as Commissioner of Purchases.

He promptly put the department on a competent and businesslike basis, organized according to the best standards of industrial buying, where previously not even the most elementary price record had been maintained. Again he had the satisfaction of doing a real work of organization, and of getting 100% cooperation and loyalty from a new group of associates. The change-over from the old system of patronage involved treading on many toes, but Hopcraft's integrity and tact overcame these obstacles and built up a new respect and confidence for the department.

Quite aside from considerations of departmental efficiency, he was a leading asset to the administration in selling the public on the businesslike management of the city's affairs. Known to be a non-partisan appointee, and sustained by national reputation and recognition in his particular field, he represented the very type of civic official which the new charter had contemplated. Further, he utilized his ability as a public speaker to bring the ideals and ob-

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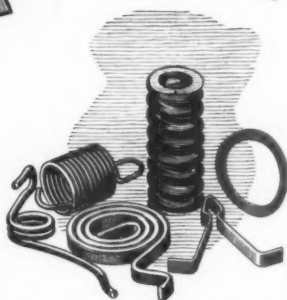
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P.

jectives of the administration to the attention of practically every service club and business group of the city.

But after five years, the manager form of government went out and party politics reentered the scene. Pressure was directed upon the purchasing department as a traditional and fruitful source of patronage. The position became increasingly embarrassing. Friends within and outside of the administration advised Hopcraft to resign, but he stuck to his guns and declined to compromise with principle. Finally, however, he found the situation no longer tolerable. In February, 1933, he turned in his resignation, and left the office with a record unsullied, after a longer tenure than any previous incumbent of the post.

It was a difficult and courageous decision to make in that jobless year, but it was characteristic of the man, and once again his abiding faith and confidence were justified. After an interval spent in liquidating a family business in the auto repair field, Art Hopcraft came back to the pur-

chasing field where he belongs, with the Cleveland Worm and Gear Company and Farval Corporation. As always, he is doing a competent job with a forward-looking, progressive viewpoint. At the moment he is analyzing the principles and exploring the possibilities of reciprocal trade. That is undeniably a factor in present-day industrial relations, and whatever the merits or demerits of the plan, he proposes to know what it is all about and to handle the situation both intelligently and efficiently.

KNOWN TO PURCHASING men chiefly through his professional service and accomplishments, Hopcraft's interests are by no means limited to the workaday side of life. He has been prominent in Cleveland's Al Koran Shrine, chairman of some of its most elaborate and memorable public affairs, a member of the board of trustees, president of its luncheon club in pre-depression days and first vice president in the current revival of that activity. He is

also profoundly interested in, and a regular attendant of the Christian Science Church.

Family life, however, has always been his first interest and the source of his deepest satisfactions. He will celebrate this fall the thirtieth anniversary of his marriage to Miss Rhea Schoonard, a talented Cleveland girl. Theirs has been a real partnership through all the ups and downs of life, characterized by mutual understanding and a steadfast regard for the things worth while.

Their daughter, Thelma Joyce—now happily married and living at Lorain, Ohio—shares her father's executive ability, his wit and skill as a raconteur. Many purchasing men recall her vivacious presence at several of the conventions, as a child and young woman; at home, she saw to it that there was never a dull moment. The son, Lester, is now a young man of 22, just getting properly established in the business world. As president of N.A.P.A., Art carefully scheduled his trips so as to

Continued on page 53

A CONTRACT CLINIC

QUESTION: *Is a purchase order a contract?*

ANSWER: That depends on the circumstances. The only essential difference between the two is that a contract requires mutuality, as evidence of a meeting of minds, whereas the purchase order is a one-way document.

If the order is acknowledged, thus constituting an offer and acceptance, no more formal agreement is required, and a contract has actually been negotiated.

Many purchase orders—perhaps most—are issued directly in response to a definite bid or quotation, and are therefore the acceptance of an offer, provided there is no alteration in the terms of the offer. It is a wise precaution to note in the body of the order that it is placed "in accordance with your bid of (date)" so as to indicate that a contract is consummated.

Some companies, as a matter of policy, have no purchase contracts other than their file of purchase orders issued, and have been successful in maintaining that policy in a large percentage of their transactions. It seems to be a thoroughly workable and satisfactory plan, provided the proper acknowledgments are secured.

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QUESTION: *How can I be sure of getting an acknowledgment?*

ANSWER: You can't be sure, but you can try. Like every other phase of the purchasing job, the successful carrying out of this responsibility requires planning, follow-up, and the personal ability to sell your supplier on the idea.

The simplest plan is an acknowledgment coupon attached to the order form itself, to be signed and returned by the vendor. A tickler file can be maintained to indicate how soon this should be received, depending on distance, time required in the mails, etc. From that point on, the system is much like any other follow-up—starting perhaps with a form letter, and leading up to a wire or phone call.

This is a matter involving judgment, taking into consideration the urgency of the order, its importance from the angle of money involved, and other factors. On a small supply item from the neighboring hardware dealer, it is quite likely that delivery has already been made. On a larger commitment, on which delay in acceptance may entail advancing prices or loss of position on a priority list, an immediate long distance call may be in order, to secure prompt verbal acceptance and confirmation.

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QUESTION: *What if the acknowledgment is not exactly in conformity with the order as issued?*

ANSWER: Then, strictly speaking, it is not an acceptance but a counter-offer, and it awaits acceptance

by the purchaser to become a binding contract. The transaction is still open to negotiation, and a definite understanding should be reached upon all points at variance. Sometimes the discrepancy may be slight and unimportant, but in other cases the issues may be vital and change the whole complexion of the purchase.

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QUESTION: *Is it advisable, then, to read a vendor's acknowledgment form in complete detail?*

ANSWER: By all means. It is not only advisable but essential. Altered terms of payment may disrupt a whole accounting and disbursing schedule. Even more important, however, are other stipulations which may appear as "standard" printed clauses in the acceptance that are utterly unacceptable to the buyer.

For example: "Materials covered by this contract to be for purchaser's use only, and not for resale." What if the material becomes obsolete? According to this clause it has to go down the sewer, no sale for salvage value being technically permitted. Or: "Goods to be delivered in six equal monthly shipments." This regardless of probable variations in requirements that would sometimes dictate calling for immediate delivery of the whole lot, or deferring a portion of the material. Or: "Insurance on goods in transit to be for the account of the buyer." Here's a hidden item of cost that may be entirely out of order if delivery is specified f.o.b. the buyer's plant, in which case the responsibility is clearly that of the seller up to the point where title passes.

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QUESTION: *What if the seller, instead of sending an acknowledgment, asks for a new order to be issued on his own contract form?*

ANSWER: There is certainly no justification for having two orders outstanding covering the identical requirement. If the original order is to be voided in favor of the vendor's form, the burden of the argument is upon him, and the only reasonable argument is some change in terms or conditions. Otherwise the procedure is meaningless duplication. In the event of such change, the matter calls for closest scrutiny in order that the buyer's original intention is not materially altered.

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QUESTION: *Since the contract in itself protects the buyer against a price advance, is it unreasonable to ask for a clause providing for downward price adjustment in case of a market decline?*

ANSWER: No. Buyer and seller must not lose sight of the fact that the contract to take a specified quantity of the product, guaranteeing a certain volume of operations to the vendor, is in itself a valuable con-

sideration. Many contracts are placed in anticipation of market advances, but the vendor is given the opportunity to cover his own material requirements up to the extent of the order, and is expected to do this. Many contracts are placed to insure continuity of deliveries, and from a common sense viewpoint it is the reasonable obligation of a vendor to protect the interests of a valued customer, at least to the extent of exercising ordinary care in relation to his own material costs, if such protection is asked and can be provided without undue hardship. On the other hand, if the buyer requires or authorizes certain stocks to be made up in advance and held subject to his immediate call, it would be unreasonable to ask the vendor to carry the risk of loss on such quantities.

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QUESTION: *What is the force of a contract specifying quantity only as the company's "requirements" of a given item?*

ANSWER: Very little force, unless the word "requirements" is qualified by setting a stated minimum. It binds the seller to deliver, but it does not bind the buyer to order if the expected requirement does not develop or if some slight change of specification takes the requirement technically outside the scope of the contract. Vendors are properly wary of such contracts. Phrased for the maximum of flexibility, they are too flexible to offer a solid basis of understanding or to give that mutual security that should characterize every signed contract. These are rather in the category of so-called "gentlemen's agreements."

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QUESTION: *As a general rule, is it preferable to have a contract on the buyer's or the seller's form?*

ANSWER: Opinions differ on this point, and three representative answers are therefore presented:

(a) The buyer's purchase order or contract form is necessarily a very simple or general form. Being used in connection with a wide variety of products it cannot adequately cover conditions peculiar to each of these industries, whereas the seller of petroleum products, or of machinery, etc., can specifically deal in his standard contract with the particular contingencies likely to arise in that type of transaction. Consequently the vendor's form is likely to be the more complete and satisfactory.

(b) Since the purchase originates with the buyer's organization, it is only proper that the contract offer should also originate with the buyer, and it would naturally be upon his own form. Ordinarily the purchase order itself is enough. If this needs to be amplified or qualified, the buyer should be competent to draw up a form embodying the necessary clauses. This would seem to be the most logical procedure for expressing what he has in mind; it may be the only way to know exactly what the contract actually provides. Such an offer may be subject to negotiation before ac-

ceptance, but it is easier to negotiate on the basis of writing in an additional clause or two than to start with the necessity of striking out a series of clauses which may be unacceptable to the buyer.

(c) The middle course. On some types of material, usually technical in nature, vendors' contract forms can be used to advantage because of their completeness and specific provisions relative to the product. Use of such forms, however, does not relieve the buyer of his responsibility to familiarize himself thoroughly with the conditions proposed, to question conditions which seem contrary to his interest as buyer, and to seek necessary modifications or alterations on a mutually satisfactory basis before affixing his signature.

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QUESTION: *Should standard or special terms of payment be agreed upon in advance and made a part of the contract?*

ANSWER: By all means, terms should be understood and specified. "Standard terms" for buyer and seller might be altogether different. In most major industries there are trade customs covering (among other points) the terms of payment, which are generally recognized and accepted. If any deviation from these terms is contemplated, it is particularly necessary to make this a matter of record, otherwise the trade custom would be implied and would govern any arbitration or litigation that might ensue.

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QUESTION: *Should the buyer or the seller sign the contract first?*

ANSWER: This question is significant only when there is an appreciable interval between the two signatures. Buyers are justifiably wary of the contract which they are urged to sign, but which is not valid until accepted at the main office. Such an arrangement gives them no coverage or security but prevents their making arrangements for an alternative supply in the event that an acceptance is not forthcoming. They have a right to deal with sales agents having sufficient authority to enter into a binding agreement, or otherwise provided with positive assurance that the order is acceptable.

Salesmen hesitate to leave signed orders lying around for purchasers' deliberation and study because that privilege is sometimes abused, the order being signed and sent after a considerable time has elapsed and perhaps only after changed market conditions have altered the situation in the buyer's favor. Time is often necessary to digest such an order, but the abuse might be controlled by setting a reasonable time limit after which the offer would automatically be voided unless renewed.

"Acceleration" is the title of an attractive new folder released by the Howard Paper Co., Urbana, Ohio. It includes some stimulating advice to printers as well as several specimen letterheads illustrating effective design.

Why do Purchasing Agents Remain Unconscious?

Brothers, take a tip from those clever boys whose function in the business whirligig is promotion of the company—and of themselves

C. L. LEIGHTON

Purchasing Agent
Autopoint Company
Chicago

THOUGH SEEMINGLY refuted by our miens—which appear dark, dour and despairingly dull—we Purchasing Agents emphatically are not misanthropes, but sentient human beings of kind natures who yearn for happiness.

True it is that betimes we engage in heated argument, contention and strife with those who contact us. Yet in this there is not a whit of proof that we hold malice toward our fellowmen. Naturally, when forced to be slightly partial, it is urgent that we employ our forensic talents in favor of the authors of our pay checks.

Did not this necessity maintain, we would be meekly pliant and yielding as fresh putty.

Sincerely we strive to aid in the establishment of a Utopia for our bedeviled brother executives in all departments of business—although this idea, long the rose-tinted dream of the super-optimists, is yet, to the rest of us, naught but a nightmare.

And so each sunrise finds us laboring hopefully to promote relations of blissful amity between all men engaged in the closely related activities of advertising, selling and purchasing.

We Purchasing Agents patiently bear with those we privately suspect are afflicted with enlarged egos—and who, by their patronizing attitudes, would appear to be giving us the hi-hat. Diplomatically, even humbly, we cater to their vanities and courteously feign not to notice their astounding selfishness.

Readily we accept all offers of friendship (without requiring the usual detailed specifications)—even that proffered by those whose rather flabby handshake may or may not indicate other than a desire to sell us something.

And I ask you, Brother Purchasing Agents, just what do we receive in return for all this admirable forbearance, humility and patient philanthropy?

In an article entitled, "Should the Purchasing Agent Beat Down the Price?" published in these columns about a year ago, I devoted several paragraphs to what I believe to be the answer to this question.

Therein I stated that because of the peculiar factors that so largely dictate our functional acts, we are denied full and intimate relations of friendship with our fellowmen. Especially with salesmen who sell us things, and who might have an inclination to remember us with divers baubles on dates other than December the Twenty-fifth.

Certainly, unless we snap out of our semi-unconscious - and - don't-give-a-care attitude, we are automatically doomed to remain involuntary eremites, shunned as pariahs and laboring alone in our cheerless cubicles.

We have none to blame but ourselves, Brothers.

For some unexplainable reason we refuse to take a tip from the demonstrated methods of the sales and advertising managers—methods that we see rewarded with fame and bigger salaries. These are clever propagandists, ever promoting the super-importance of their

departments and the utter indispensability of their personal services.

I could cite columns of proof to sustain this assertion—but only through unusual editorial indulgence. So I must be brief:

Citation No. 1. Lately sales and advertising managers, keenly realizing that the designation "Manager" has grown commonplace, have added to their illustrious eminence by discarding it for the impressive and awe-inspiring, "Director." Rather a clever idea, eh, what?

Citation No. 2. For every tome written on "Buymanship" that you can find, I will point you ten thousand, more or less, entitled "Salesmanship" or "Advertising." Moreover, the authors succeed in obtaining full-page reproductions of their famous physiognomies, and often induce editors to praise them to the blue zenith.

Of course the mere shift from one title to another, or a full-page reproduction of a rather self-conscious phiz, or even a swell encomium by ye indulgent editor, cannot add a single jot or tithe to the actual ability of the subject.

But no matter. My point is that Purchasing Agents, either as promoters of the importance of our profession or as disseminators of individual fame—are just callow amateurs.

Surrounded as we are by devices of rote, records, files, and a hodgepodge of voluminous litter upon our desks and in the drawers thereof—in which it is quite impossible to locate important papers until we no longer need them—we unconsciously have become automata, mechanical as the micrometers some of us use. We have permitted ourselves, through a false sense of modesty, to degenerate into plodding toilers—honest and loyal dullards, self-elected. We work like Trojans, but being destitute of imagination, we work to the attainment of no audacious personal ambition.

Like a tramp steamer, off course, caught in the doldrums and in danger of becoming a derelict, we drift around in circles 'mid a Sargasso of endless detail.

Small wonder then, that we may be considered as executives of secondary importance by others. By salesmen, sales and advertising managers, for instance.

Many of us are surrounded with visual evidence of this embarrassing fact. So before disagreeing with me, I beg that you first make a check-up.

Can it be—I ask you, Brothers—that nothing but mere chance is responsible for the fact that the average Pur. Agt.'s office is so often "Hobson's choice"?

While, on the other hand, those magnificent "suites" occupied by the S. & A. Mgrs., are with equal frequency either those of self-selection or the official award in recognition of professional eminence!

For the correct answer ask one of those scientific chaps who have fully tested the laws of chance by tossing up a million pennies a million times.

Have you ever noticed that if a fire-escape crosses any one of a hundred office windows—it is a good ten to one bet that it is the very window through which a P.A. could otherwise gain an unobstructed view of the glorious world? Or have you observed that if an office is located in the vicinity of any unavoidable nuisance—said office will, in most instances, prove to be the official habitat of a sad-eyed Pur. Agt.?



The William Penn Hotel, Pittsburgh, scene of next month's convention of N.A.P.A. Mr. Leighton has a few suggestions for the program committee

Take my own office as an example.

It is located right next to the ingress through which divers individuals, who contact our more illustrious executives, are being constantly admitted. If I seek quiet by closing my door, the flow of air from the lone window of my alley-shaped den immediately ceases. Do I seek to avoid asphyxia by opening my door, the clumping of the army of our salesmen, outside salesmen, representatives and what-not, becomes maddening.

At peak periods of traffic I am sometimes quite unable to restrain the inclination to have a look

through my door, thus proving myself wrong in imagining the marchers to be doing the goose-step.

Yes, Brothers, you have anticipated my next assertion. The offices occupied by those big shots of the mental world—our S. & A. Managers—are most admirably situated amid surroundings that permit serene and blessed privacy.

(P. S. I trust that if by chance the General Manager, C. N. Cahill, reads this, he will recognize it merely as a general observation necessary to prove my points—and not as a specific and actual complaint.)

In many institutions—so I am

informed—there can be observed what appears to resemble nothing else so much as just plain, habitual discrimination, with the humble P.A. holding the traditional bag.

For one thing there is often a surprising variation between the appearance of the furnishings that bedeck the suites of the Sales and Advertising Managers, and those that fail to add any considerable class to the cluttered cubby-hole of the ever-industrious Purchasing Agent.

Enter one of the former, and what do you see? An impressive array of regal mahogany or walnut elegance. Or, maybe, you'll find it swagger with modernistic devisements.

In which latter event you cannot fail to be immensely impressed by the inviting divan, luxuriously cushioned with leather of Tyrian purple—by the wonderful "chairs," equipped with "legs" artfully designed by bending glorified gas-pipe—by the rich arras drapings and by the costly rugs from Bagdad or Buffalo.

Certainly it cannot logically be denied that when it comes to mental activity—the S. & A. Boys are there. Else who are we to explain their attainment of such utter magnificence?

Thence, go to the P.A.'s chambers.

And just what will you observe?

Nothing that will knock out your eyes, Brothers.

Possibly the famous desk formerly used by the founder of the business, during the decade that followed the close of the Civil War. Maybe a swivel-chair, slightly marred and grown a bit wobbly because the screw has lost its "Grip in the Tip." A chair formerly the property of the Sales Manager, up until the time he got the idea of becoming "Director of Sales." By chance a large table representing the left-handed contribution of the generous Advertising Manager, and made at the time when he went modernistic. And you will see a scattering of antiques dating from the late Colonial Period, yet reminding one of the "Wreck of the Hesperus."

Fortunate, indeed, is the P.A. who quite unavoidably has been

granted the semblance of social equality through modernization which dictated the installation of standard equipment.

Between the offices of the Sipient & Astute Managers and the left-over cavity occupied by the Poor P.A., there is not only a physical, but also a non-material difference. It is an unlikeness in "atmospheres." In the S. & A. offices there is joy, hope, comradeship, ambition, enthusiasm, progress and *esprit de corps*. In the other—sadness, disappointment and resignation to a fate that overshadows all like some noxious miasma. Betimes from the S. & A. offices come echoes of friendly badinage and gay laughter. From the P.A.'s—naught but cacophonous sounds of argument, contention and strife.

And so there is nothing surprising in the fact that salesmen of the better type eagerly storm the offices of the S. & A. Boys—and seek to give the glad-hand to the P.A. only when it is absolutely necessary.

In fact, unless the salesman is one who must take orders for gadgets of iron and tin, typewriter ribbons, coal, rat-traps, *et cetera*, he rather prefers NOT to see the P.A.

And why should he—when the Sales and Advertising Managers have all the brains?

If an experienced salesman has a brilliant idea for sale, does he seek the P.A. and try to get him to enthuse over it?

Certainly not. It is utterly impossible to induce a Purchasing Agent to enthuse over anything.

He hastens directly to those brainy boys whose business is also selling.

And these diplomatic chaps—even if they think his idea punk, puerile and N. G.—never fail to go into raptures over it. They load him down with compliment—laud his creative ability—pat him intimately on the back—tell him not to fail in getting in touch with them immediately after the Fourth of July or St. Patrick's Day—kiss him out of the sanctum.

Or if they decide to deny the salesman admittance to their oh-so-

exclusive company, they do not—as does the uncultured P.A.—crudely refuse to see him.

No, they are slickly suave in their side-stepping. Presently the "personal secretary" of the S. or A. Manager emerges from the holy door, momentarily halting to brush back a nomad tress. Then she leisurely advances and informs the salesman that "Mr. Deswank will be in conference most of the day." Even old man Machiavelli had nothing on these members of the real Brain Trust.

This artful ruse so heightens the importance of the S. or A. Manager in the mind of the salesman that he quite reluctantly considers the practicability of the slight come-down in outlining his idea to the General Manager or to just the President.

In days agone I pounded the Sidewalks of Chicago myself. So when speaking from the viewpoint of the salesman, I am talking from actual and vivid experience. Therefore, believe me when I aver that nearly all H. P'd. salesmen firmly believe that the Sales and Advertising Managers have all the brains.

Also do not doubt me when I postscript the statement that these same salesmen consider the average P.A.'s intellect somewhat below the quality of brains so humorously demonstrated by Andy Brown, he of the egg-shaped head.

Now do not get hot under the collar, Brothers.

For one thing, that would be futile. For another, we have none to blame but ourselves.

Quite a difference in meetings and conventions of the S. & A. professions, and those we sit in on. At the former: gayety, élan, the sparkling *bon mot*, a bright reference to the private lives of two Irish gentlemen (whose names escape me at the moment). Whereas the educational, informative nature of our meetings gives them a seriousness and grave dignity. Possibly some of our good S. & A. friends, Presidents and Gen. Mgrs. might feel considerable surprise on attending a P.A. gathering. Then again, they might learn a few things.

Continued on page 54



4: Automobile Production

HAROLD A. KNIGHT

THE AUTOMOBILE industry is the hero of American industry. The various "pointings with pride" by the sons of Uncle Sam over the family's achievements are invariably directed toward the automobile industry. It is the industry which first taught the world mass production; it is the industry which has most rapidly invented new devices to perfect its product. It is the industry which has most rapidly led the United States out of the depression. Thus in 1935, the first year of genuine recovery, factory sales of automobiles gained 45% and foreign sales increased 19% as compared with the preceding year. Employment in manufacturing, distribution, servicing and highway transportation have now passed the peak of 1929.

Retail automobile sales during the first two months of this year at 561,769 passenger cars and commercial vehicles broke all previous records for the combined sales of January and February, and were 8% above the previous two-month record in 1929. Though other industries may be more basic, such as steel, there is a popular appeal and romance in the automobile industry such as few

others, like radio, enjoy. The automobile industry has perhaps done the most to uplift the standard of living, bring happiness, broaden the horizon and increase the efficiency of the average man.

The importance of automobile production as a business barometer can be surmised by a quick glance at the many commodities used in automobile manufacture. The great steel industry sold 22% of its products to the automobile industry in 1936; the plate glass industry sold 72%; the rubber industry 75%. Automobiles consume 89% of our gasoline, 57% of the lubricating oil, 28% of the nickel, 35% of the lead production, and 40% of the mohair. In all these industries the automobile industry is the largest single consumer.

It is also an important outlet for leather, aluminum, copper, tin, zinc, cotton, lumber and hair. Thus in-

crease in automobile production implies increased business for many industries.

One of the most vigorous and thorough trade associations is the Automobile Manufacturers Association, which is the fountain head of all non-Governmental statistical data and barometric figures on the industry, and often the basis of data of the more private agencies who give supplemental data and cater to speed and timeliness. A yearly text book of the industry is its 100-page pamphlet on Automobile Facts and Figures, with reading matter, tables, illustrations and charts on every conceivable phase of the industry.

Sixteen years ago there was founded Cram's Reports, naturally at Detroit. They state: "Cram's is the pioneer in the field of automotive production estimates. We publish what is generally recognized as the most accurate estimate figures on automobile production in the United States. We endeavor to give the behind-the-scene situation in the various companies of the industry. This coverage includes the major accessory and parts manufacturers, tire manufacturers, as well as passenger car and truck manufacturers."

**Next Month:
Railroad
Carloadings**

ADDING PAGE AFTER PAGE TO PAPER-MAKING HISTORY



... watch McLAURIN-JONES!

Fairly bursting with new ideas and better methods, backed by a hundred years of *knowing how* with paper, McLaurin-Jones Company is driving ahead. First to gum and coat paper on the roll, first to guarantee flat gummed paper, first to guarantee "no kake" gummed paper, first to manufacture gummed papers that stood up to those guarantees. It is safe, then, to assume that the word from McLaurin-Jones today will be added to the pages of paper-making history tomorrow.

Your business needs McLAURIN-JONES Blue Star SEALING TAPES

Follow the lead of far-sighted purchasing agents everywhere. Stock up with a full line of McLaurin-Jones Blue Star Sealing Tapes. These popular, all-purpose tapes are built for long and heavy duty: No. 1 Kraft is backed with McLaurin-Jones scientifically perfected gummings that grip like a vise. Complete range of widths. Refreshing colors! Special printing to your order. Identified easily by the Blue Star stamped on every core. Ask your local paper merchant for samples, prices, and complete information.

CONSIDER TOO, THESE OTHER FAMOUS McLAURIN-JONES PRODUCTS:

Ware Coated Papers and Post Cards
Ware Gold and Platinum Papers
Ideal Gummed Hollands
Ideal Photomount
Ideal Head Bands

Ideal Binding Cloth
Ideal Cloth Lined Papers
Ideal Gummed Veneer Tapes
Ware Foils
Ware Box Covering Papers

McLaurin-Jones Guaranteed Flat Gummed Papers
Ideal Gummed Box Stay
Ideal Gummed Cambric Tapes
Blue Star Sealing Tapes



McLAURIN-JONES COMPANY - BROOKFIELD - MASS.

McLAURIN-JONES COMPANY

BROOKFIELD, MASSACHUSETTS

MILLS AT BROOKFIELD AND WARE ★ OFFICES: NEW YORK · CHICAGO · LOS ANGELES

Cram's weekly survey "is for the purpose of providing clients with unbiased estimates of conditions existing and developing in the automobile industry and general business, together with an analytical interpretation."

Of course the field was too big for one private concern to monopolize, so that Ward's Automotive Reports eventually came into being, with much the same general purpose. They feature also total monthly registrations of new passenger cars by states and makes. In other words, production of automobiles is one barometer and actual passing into ultimate consumption is quite another—as many an automobile dealer, compelled to buy his cars outright, is able to testify from bitter experience.

Ward's new passenger car registrations as expressed per make of car are both in terms of actual number of sales and percentages for each make of the whole and are published through permission of R. L. Folk & Company, another automobile statistical agency which specializes in registrations.

A limitation of the compilations of the Automobile Manufacturers Association is that their figures are compiled for members only. As emphasized in other articles of this series, the Federal Government is the last word in authoritative compilations through the United States Census Bureau, but again, the figures make their appearance tardily by comparison with those of private agencies.

Publication of automobile barometers is perhaps the most widespread of any, with all sources mentioned above being quoted frequently on the news tickers and on the financial pages of our daily newspapers. The Manufacturers Association contains good permanent records on a yearly basis.

The automobile industry also affords what might be termed a hidden barometer of various commodity prices. The industry is the shrewdest buyer of commodities on record. The sharpest price concessions ever made by the steel manufacturers are to the automobile producers, who

Continued on page 54

F. O. B.

(Filosofy of Buying)

SPEAKING OF THE cost of purchasing—as we have been for the past couple of months—here's a new slant, for which we are indebted to Blan P. Dysart, City P.A. at Dallas. In the very attractive annual report of the municipal administration, we come upon the section devoted to the purchasing department, carrying the sub-head:

Employees	5
Expenditures	\$10,289
Annual per capita cost	\$ 0.036
Monthly per capita cost	3 mills

which is certainly a reasonable enough charge for the service of a competent buying staff to safeguard the interests of the citizenry and to insure maximum mileage from the tax dollar. But in the detailed analysis of operations which follows we learn that in a two year period the department made net savings amounting to \$91,731. And it occurs to F.O.B. that the sub-head might be changed, or amplified, to include the information:

Biennial per capita dividend \$ 0.321

which is the price of a neighborhood movie, including most of the tax.

PRESIDENT H. E. BLOOD of Borg-Warner's Norge Division counsels bankers in the March issue of *Banker's Monthly* that "The merchant is a good banking risk in relation to his selling prowess, and the safest loan is one that helps the merchant move goods to the ultimate consumer." Curious Cuthbert wonders whether the most direct means to this end might not be to loan the ultimate consumer the price of (for example) a Norge.

*Blessed is he who giveth purchase orders gladly
during the buyers' market, for now he getteth
deliveries—maybe.*

HORSE AND BUGGY days are definitely over at Knoxville, Tenn., as motorized equipment has been purchased to replace the last of the city's "hay-burners" and P.A. Jerry Henderson proceeds to auction off the remaining wagons, harness, and animals. ("Chief," a 24-year old gray, and dean of the force, has been pensioned on a nearby farm.) Mr. Henderson speaks feelingly of the high cost of hay, corn, and oats, and is glad to get them off his requisition list. Unfortunately, however, he still has to buy alfalfa for the General Hospital rabbits.

OUR ANTHOLOGY of the Poesy of Purchasing grows apace. And now add to the list of bards the name of Helen Werner, Secretary to the State Purchasing Department at Lincoln, Neb., who penned the following lament. When you have read it you will join in our heartfelt wish for the speedy recovery of State P.A. J. R. Farris.

Purchasing Office Madhouse

The purchasing agent took to his bed
he took to his bed with the flu,
And the purchasing agent's peccable clerk
had the purchasing work to do.
The purchasing clerk she rolled up her sleeves
and pulled down her vest and spat,
And down on the purchasing agent's chair
with an air of aplomb she sat.
At the end of the day she was raving mad
and they tethered her up in a cell
And these be the demons that chased her down
down to the jaws of Hell:

Baffles and slingers and shackles and shims,
elbows and knuckles and nuts;
Collars and couplings and throttle shafts,
eveners, axles and butts;
Spindle chucks, levers and shifter forks
tappets and ten-penny nails,
Pouring-cans, bushings and governor ball
washers and cams and pails;

Aggregate, oxygen, Prestone, guns,
Masonite, tear-gas and mats;
Tractor disk harrows and grader blades,
spreaders and sprayers and cats;
Beacons and torches and lumber and chains,
lubricants, greases and glands,
Shrubbery, culverts and guard-rail posts,
Coal and cement and bands;

Distillate, cotton and trammel net,
crack-filler, tents and maps;
Bearings and fresnoes and license plates,
dynamite, plumb-bobs and caps;
Milk-testing bottles and steripads,
breast-waders, half-inch rope,
Profile and plan sheets and rubber gloves,
seine-webbing, anthrax dope;

"One full set of *correction tools*,—"
Who are they for? I'll guess;
To straighten the brains of the dizzy lugs
who ask me to purchase this mess.
"Grinder with belt that is *tight and loose*—"
(You can believe it or not)
One animatiphone, litmus strips,
tar and a boiling pot;

Twelve hundred yardage of red percale,
"For the field engineers"—did you say?
A bolt of gold ribbon, organdy too,
are the lads piecing quilts for their pay?
Rabbits and rags and rotary plows,
barrels and bottles and bricks,
Guinea-pigs, goggles and gasoline,
squeeges and sand and sticks.

Round and around went the mad parade,
"Butterflies, worms and gears,"
She was Somebody's Mother, boys, you know,
be not ashamed of your tears.
This, gentle reader, is only a part—
only a day at the game
But the purchasing agent's ponderous clerk
will never again be the same.

Air Express Saves Days and Dollars for Industry

THINK of it!" writes B. C. Forbes, editor of *Forbes Magazine*. "An order for a machine part received from a distance one-third around the globe, after being filled with lightning rapidity, was delivered in two days' time from the moment of shipment."

Mr. Forbes' reference is to a recent air express shipment of a new die and fifty connectors by the Anaconda Wire and Cable Company from New York to a small community twenty miles from Honolulu, Hawaii.

In dire need of the die and connectors, the director of a big construction job radioed the Anaconda company to rush them. Fabrication of the die consumed two days of valuable time after the order was received. The parts, picked up by a Railway Express truckman in New York on a Tuesday afternoon, arrived in Honolulu Thursday morning, and before noon were doing their bit in far-off Hawaii.

"Surely," Mr. Forbes continued, "this constitutes a historic record! The express charges were \$4.50 a pound. But the total cost of \$27 was a mere bagatelle contrasted with what the cost of delaying the construction project would have been."

J. N. McDonald, advertising manager of the Anaconda Company, said this shipment to Hawaii, because of the speed of its arrival was,

a money saver to the construction job. Mr. McDonald said he made frequent use of air express in expediting advertising matter.

Spectacular air express shipments of the nature described by Mr. Forbes are not unusual. Indeed, they have become so common that the men within the company who have knowledge of them no longer think of them as deserving special reports to headquarters. However, shipments of this character are of great value to the company, it is admitted, as serving to call attention to the extraordinary matter-of-course use made of air transportation today by progressive Americans.

Not all air express shipments travel great distances. This was so in the early days of air express when shippers thought largely in terms of speed and long distance. Gradually, with the increase in the average weight, the average distance has been shortened. The average weight per shipment for 1936 was 8.23 pounds; in 1935 it was 7.67 pounds. The average estimated length of

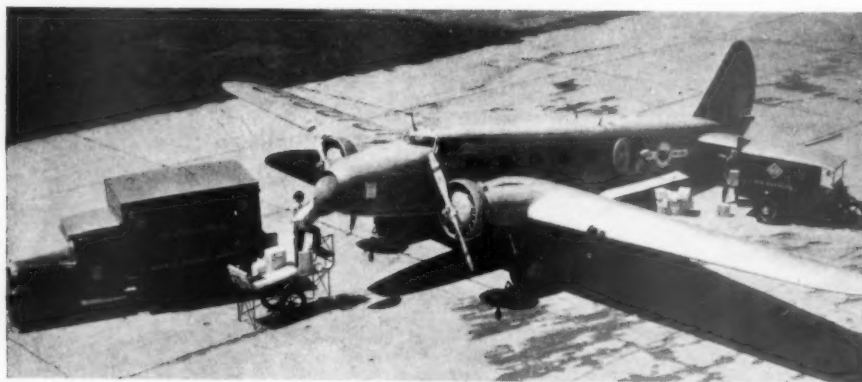
haul for 1936 was 763 miles; for 1935 it was 838 miles.

Illustrative of the short haul was a recent shipment of maple sugar from Vermont to New York. F. J. Held, a purchaser at John Wanamaker's New York store, ordered 120 one-pound cakes of the first of Vermont's 1937 maple sugar crop from the American Products Company at St. Albans, Vermont, rushed to New York by air express. The object in this case was to be the first store in New York to offer Vermont maple sugar from the 1937 crop, and Wanamaker's was willing to pay additional expressage for the prestige this opportunity afforded the store.

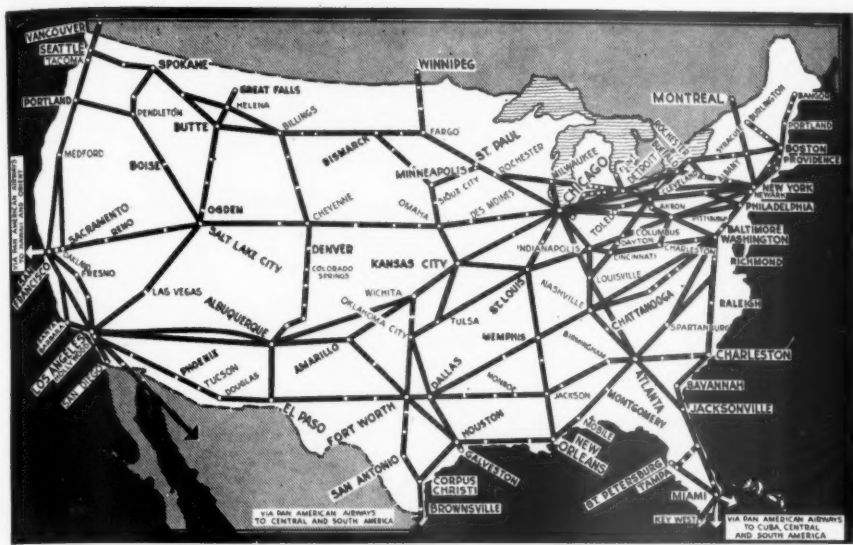
Five thousand tons of fish were saved recently by a comparatively short air express haul by the American Can Company of a gear from San Francisco to Portland. The San Francisco office was notified at 2 o'clock in the morning of a breakdown in the Portland plant. The part was removed from an idle machine, and rushed to Mills Airport, where it caught the 3:30 plane for Portland. At 9:00 o'clock the gear was in the customer's hands and by noon the machine was running.

"Not a salmon fin was lost," ended the company report of the incident.

J. W. Harley, assistant general traffic manager of the U. S. Rubber Products Company, tells of an overnight air express emergency shipment by his company. A sixty-six-pound rubber diaphragm for a pump was sent from New York to the Southern Pacific Railway at Los Angeles, a distance of nearly 3,000



The modern plane carries express both fore and aft



Air express service is truly national in scope

miles. This, too, was due to a breakdown, and the order came by telegraph.

The American Tobacco Company, according to W. R. Settgas, assistant traffic manager, ships on an average 200 air express packages out of New York every week. Many of these are to company salesmen in the field announcing the winning names in a "sweepstakes" conducted by the company. These announcements are picked up by Railway Express each Monday and before Wednesday, when the winning names are broadcast, the salesmen have posted them in tobacco stores all over the country.

After the recent Ohio River floods, American Tobacco Company shipped twenty-four pairs of rubber boots from New York to its Louisville factory. This was an emergency shipment. The boots were worn by men who cleaned out the mud and debris left on the floors of the factory as the waters receded.

On December 18 last the *New York Times* ran a full-page advertisement in which R. H. Macy & Company offered to make last-minute shipments of Christmas presents by air express. The advertising department of Macy's reports that as a result of this ad, articles varying in importance from Persian lamb coats to tiny toys were air expressed to nearly every state in the country. The most interesting shipment, from the oddity point of view, was an artificial Christmas tree with ornaments

forwarded on December 19 to a customer at Port of Spain, Trinidad.

America's first expressman probably was a postrider of Colonial days. History does not reveal his identity. Officially he was the government postman. Unofficially he was a package carrier as well, and it was through him that much of the merchandise of the pioneer days reached its destination.

Then came the stage coach driver. His first package chest was his top hat. It is related of Benjamin P. Cheney, an early express official, that he attributed the baldness that came upon him in middle age to the constant friction of a conglomeration of small articles stored in his hat as he swayed from side to side on the box of his coach over the rough roads.

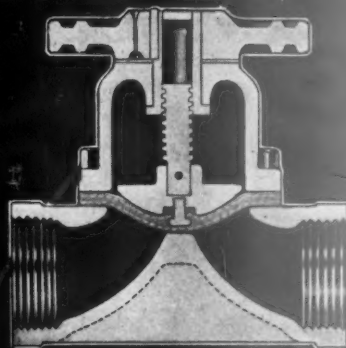
It was on March 4, 1839, that what Railway Express Agency recognizes as the first express service in the United States was started. The pioneer back of the service was William F. Harnden, who, at twenty-six years of age, started a venture that has developed into the largest package-carrying company in the world.

After Harnden came Alvin Adams, Henry Wells and William G. Fargo, names now familiar in express history.

The American Railway Express Co., predecessor of the Railway Express Agency, began experimenting with air express as early as 1919, and

Continued on page 50

Looking for a Valve



that
WON'T LEAK
STICK, CLOG
BREAK OR
WIRE DRAW?

Here's the Valve

—used extensively for handling acids, alcohols, fruit juices, extracts, alkalis, compressed air, clear or turbid waters as well as gritty or viscous solutions.

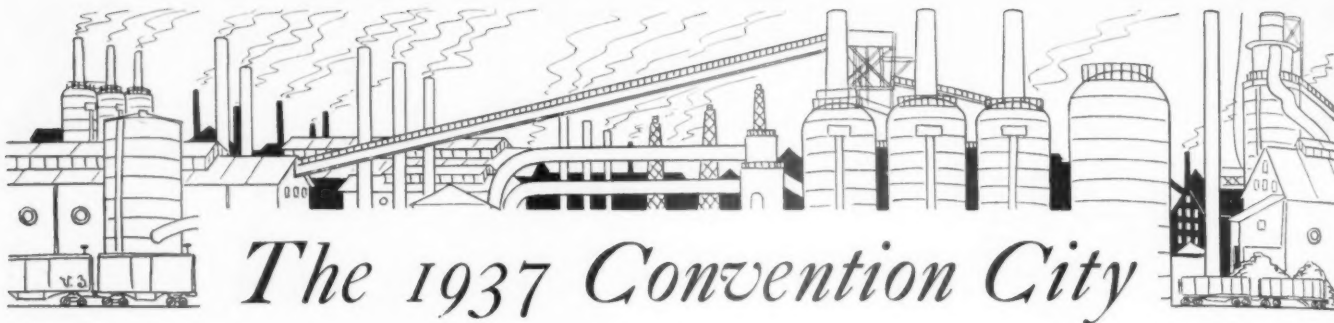
Its operating parts are protected from contact with substances handled. There is no dependence upon machined surfaces for a tight closure. The only repair necessary is occasional replacement of diaphragm used as the opening and closing medium which is accomplished quickly and economically without removing valve from line.

Available in 1/2" to 12" sizes with bronze, stainless steel or cast iron bodies lined with glass, rubber or lead.

Send for interesting Catalog.

HILLS-McCANN Co. 2437 NELSON ST. CHICAGO

VALVES for CHEMICALS
AIR • WATER



The 1937 Convention City

“As Steel goes— so goes Pittsburgh”

CHAS. R. MILLER, JR.

Purchasing Agent, Pittsburgh District
Carnegie-Illinois Steel Corporation

A RECENT advertisement prepared by the United States Steel Corporation and subsidiaries stated, “As Steel goes, so goes Pittsburgh.” The very spine of Pittsburgh is steel and its life blood is the molten lava of its blast furnaces. Many other industries flourish and prosper here, but to the world at large it is known as the “Steel City.”

Such names as Carnegie, Frick, Spang, Byers, Oliver, Jones, and Laughlin are public property, and of all these great men, Andrew Carnegie is perhaps the most widely known. His own life is indicative of the struggles, failures and successes of the steel industry in Pittsburgh. With a keen foresight and a courage which was indomitable, Carnegie labored and fought, and in the course of time built around himself an organization that has prospered and grown until today it is an integral part of the world's greatest steel empire.

In 1792 the iron industry was born in Pittsburgh when George Anshutz built a small furnace, located in what is now the Shadyside section. Unfortunately, Anshutz did not have the facilities for ore

transportation and, as no ore could be located in the vicinity, the furnace was soon abandoned.

Pittsburgh's first venture in the iron business was a dismal failure and no new attempts were made to develop the industry for over a decade. However, in 1805 the first successful iron foundry was established by Joseph McClurg. Judged by the standards of today, the plant was ridiculously small, and the tonnage produced was almost negligible as compared to that of today. Although the foundry was small and its output limited, it was the pioneer, the beginning of a vast industry which has spread Pittsburgh's fame to all the world. The output of this tiny foundry was almost totally confined to the manufacture of guns and ammunition for the fleet of Admiral Perry on Lake Erie. McClurg's foundry grew and its success provided the impetus which sent other men into the business. Within two years of McClurg's start there were three nail foundries flourishing in Pittsburgh, with an annual capacity of about forty tons. In 1812 the Pittsburgh Rolling Mill was established and then followed the Union Rolling

... and the steel industry is going stronger than ever in 1937. Delegates at next month's convention will have the opportunity of seeing steel plants in active operation

Mill in 1819. It was this mill which introduced puddling furnaces to Pittsburgh, and with these furnaces Pittsburgh was able to prepare raw materials for its own use.

By this time a part of the chance element had been removed from iron mill operations, and many mills quickly appeared on the scene. Even as early as 1826 people were becoming aware of the fact that Pittsburgh was an important iron center. According to Cramer's “Magazine Almanac” for that year: “The manufactures of Pittsburgh, particularly in the article of iron, begin to assume a very interesting aspect. No less than five rolling mills are now in operation, and a sixth will soon be ready, for the various manufactures of iron. The fuel to supply the engines, the metal and other materials required in conducting the operation of these works, and their repairs, it is computed, afford employment to upwards of 1,500 people.”

In 1858, two brothers, Andrew and Anton Klowman, established a small forge at Girty's Run, on the outskirts of Pittsburgh. The forge was conceived in hope, and nurtured by the ambition and ceaseless work of the two brothers. With the addition of Henry Phipps as a partner, the forge succeeded and grew. However, the plant was not without its failures and periods of near collapse; and Andrew Carnegie, who was admitted to the company in 1863, frequently lamented the fact that he had allowed himself to become affiliated with so uncertain a business. Many times the company was in such a precarious state that only the unflagging courage and ingenuity of Carnegie saved it from failure.

The period around 1860, however, saw an increase in the use of iron for bridge and building construction. Pipe was needed for the transportation of oil, gas and water. Railroads were demanding large quantities of iron for rails and the Civil War taxed the capacities of every source. With such demands as an incentive, great strides were made throughout the industry and the first blast furnace was installed in Allegheny County in 1859. Prior to this time charcoal had been the most generally used fuel for furnaces in Pittsburgh, but with the inception of the new blast furnace, coke was introduced.

In 1875, the first Bessemer steel was produced in Pittsburgh. The great Bessemer converter was installed at the Edgar Thomson Works of the present Carnegie-Illinois Steel Corporation, and the furnace was "blown in" by Captain Bill Jones in August. On September first, their first steel rail was rolled. In fact, the first 60-foot rails to be rolled in the United States were rolled there that fall.

In 1887 the pig iron production was estimated to be over 6,400,000 tons for the year. New equipment was replacing the old, and the Bessemer and open hearth proc-

esses had greatly reduced the costs of production. Bridges, railroads and structures were all using steel, and men who had their eyes on the future visualized a world to be dependent on steel. In 1880 there were over 90,000 miles of rails spread across the nation, and about 29% of them were made of steel. The year 1882 saw the United States produce more Bessemer steel than Great Britain and, although it is true that the next year Britain regained the lead, it was a definite indication that industry in America was successful.

Today the aggregate annual ingot capacity of furnaces located in the Pittsburgh district (15,207,650 gross tons) is the largest of any steel producing district in the United States. The ingot capacity of Pittsburgh alone is greater than that of Great Britain.

Many new mills are being constructed in and around the Pittsburgh District. The most recent of these mills to be completed is the 100" semi-continuous plate mill of the Carnegie-Illinois Steel Corporation. New methods of manufacture are replacing the old and with the development of labor-saving, rather than labor-replacing machinery, labor is finding employment where heretofore it did not exist. Not only do the fortunes of Pittsburgh depend largely on steel, but today steel stands foremost among all industries and faithfully serves not Pittsburgh alone, but all the world. The realization of the modern stream-lined automobile has been made possible only because steel was able to meet the demands of a dependent industry. The super-structure of the

Continued on page 53



New semi-continuous plate mill of Carnegie-Illinois Steel Corp.

A Stock Catalog for Purchased Items

WILLIAM A. WALTER

Purchasing Agent
Pneumatic Scale Corp., Ltd.
Norfolk Downs, Mass.

THE PRESENT STOCK catalog was started in 1930, when nothing of the kind was in existence here. The first idea behind this was to provide some means of knowing what stock was being carried, to have a name for the different items coupled with a description which could be recognized by the Stock and Purchasing Departments, and if possible to reduce the number of items which were being carried. After the first

simple beginning, the whole idea was considerably expanded into a large number of sheets, covering a total of some 4,500 items which are purchased. The sheets, which follow in general the style indicated in the specimens shown herewith, are now

blueprinted and given to all interested departments. They are useful in varying degree to several different departments, which justifies the work of keeping them up to date, whereas this might not be the case if they were of service to only one department.

The introductory sheet outlines briefly the objectives of the catalog. It states:

This catalog is issued to provide a record of purchased materials for the following purposes.

1. To provide a standard nomenclature for the articles for the engineering, stock, manufacturing, cost and purchasing depts.
2. To provide the engineering dept. with a ready reference list of sizes, types and specifications of stock items. Items not listed will not be ordered except with written approval of chief draftsman and superintendent's office.
3. To provide the stock dept. with a list of articles to be carried, their approximate cost, a record of the quantities logical for minimums, and ordering, together with the average per year. To encourage them to combine orders for similar items of varying sizes by making it easy, by using extra sheets, to check quantity on hand of other sizes. To provide a form for taking a physical inventory without writing up all items, saving time, and making inventories comparative from year to year.
4. To provide the manufacturing dept. with a list of necessary stock items from which they can decide what standard tools are necessary for inspection and for making parts not purchased.
5. To provide the inspection department with sufficient specifications so that

STOCK CATALOG									
ITEM Lock Washers, Steel		CODE NO. 5731							
SPECIFICATIONS: O.D. $\pm 1/32$, gage $\pm .007$		CODE							
Finish: Smooth and reasonably free from burrs.		DATE ISSUED 5-4-32							
Material: High carbon steel, blue tempered.		SER. NO. 50-A							
Non-Linking Type.		ISSUED BY WAW							
		ISSUED TO PG. DR. CO.							
		FS. CK.							
		REVISED 8/10/36							
		11-7-33							
SIZE	CODE NO.	Hole Range	Width of rim	Thick-ness	AV. YR.	MIN.	ORDER QTY.	INV.	STOCK COST
#10	5731-3	.190	.206	1/16	3/64	3M	300	1M	.001
1/4	5731-4	.250	.269	3/32	1/16	5M	1M	2M	.001
5/16	5731-5	.317	.334	1/8	3/32	5M	1M	2M	.001
3/8	5731-6	.380	.400	11/64	7/64	7M	1M	3M	.002
7/16	5731-7	.443	.467	11/64	7/64	1M	200	1M	.002
1/2	5731-8	.506	.533	3/16	1/8	7M	1M	3M	.003
5/8	5731-10	.633	.662	7/32	5/32	1M	200	1M	.005
3/4	5731-12	.761	.791	1/4	3/16	1M	200	1M	.006
#4	5731-04								.001
Wght per M									
#10		11 oz.							
1/4		1# 15 oz.							
5/16		5#							
3/8		8#							
7/16		10#							
1/2		15#							
5/8		23#							
3/4		45#							

6. To provide the cost dept. with costs for pricing these articles, arranged in such a way that items may be positively identified with engineering dept. or shop identification.

Suggestions, criticisms, and comment which will help in making this information more useful, will be welcomed. Suggestions for further simplification, standardization, and elimination of items will be particularly acceptable.

The sheets comprising the catalog naturally fall into three divisions—(1) about 1,500 items which go into the Finished Stock room, (2) about 1,500 which go into the Tool Crib, and (3) about 1,200 items in Steel Stores, plus raw materials of all kinds. Examination of the specimen sheets reproduced herewith will give a good idea of their scope.

For example, the information regarding steel hex-head cap screws covers two pages. At the top of

There is also one additional column marked "Part No." This is provided because in some cases

The other sheets follow this typical outline with variations to suit the particular item. Some may have more or fewer dimensions to record, and consequently a varying number of columns. With very simple items like lock washers, the sketch is omitted.

The catalog index is in three parts—numerically by code numbers, numerically by pages, and alphabetically by items.

Before this catalog was available, the question of what to order,

ITEM DOWEL PINS

STOCK CATALOG

CODE NO 613

CODE

DATE ISSUED 5-14-32
 SER. NO. 46
 ISSUED BY T. A. W.
 ISSUED TO PG. DR.
 CO. F.S.
 8/10/36
 8-14-32

SPECIFICATIONS.

$$A = \frac{5D}{4}$$

$$B = L - (A + \frac{1}{32})$$

L=OVERALL LGTH.

MAT: DRILL ROD

FRACTIONAL DIM. TOL = .007 REVISED

SIZE	CODE NO	A	D	C	B	AV. TR.	MIN.	ORDER QTY.	INV.	STD. COST	EXT.
Dia.	L									ea.	
+.0005			-.001								
-.00025			-.002								
.1875 X 1/2	613-3-8	15/64	.1875	15/64	15/64	2000	200	1000		.012	
5/8	613-3-10	15/64	.1875	15/64	23/64	1500	150	500		.016	
3/4	613-3-12	15/64	.1875	15/64	31/64	2000	200	1000		.018	
1"	613-3-16	15/64	.1875	15/64	47/64	1000	100	500		.017	
1-1/4	613-3-20									.006	
1-1/2	613-3-24									.006	
.250 X 1/2	613-4-8									.006	
.250 X 5/8	613-4-10	5/16	.250	1/16	9/32	1000	100	500		.013	
3/4	613-4-12	5/16	.250	1/16	13/32	3000	300	1000		.019	
7/8	613-4-14	5/16	.250	1/16	17/32	1000	100	500		.019	
1"	613-4-16	5/16	.250	1/16	21/32	3000	300	1000		.02	
1-1/4	613-4-20	5/16	.250	1/16	29/32	1000	100	500		.021	
1-1/2	613-4-24									.07	
1-5/8	613-4-26									.07	
.3125 X 1	613-5-16	25/64	.3125	5/64	37/64	300	50	300		.02	
1-1/2	613-5-24	25/64	.3125	5/64	1-5/64	300	50	300		.025	

Note: Because of high set up charge it is important that as many different size pins as possible be ordered at one time



**IT TAKES A
CHAMPION
TO TAKE THE HURDLES**

CHAMPION typewriter ribbons in service, wear, beauty of write, Marathon demonstrates its unquestioned superiority over "price" merchandise in true thoroughbred style.

- Translated into definite advantages, this not only means economical typing at a definitely fixed cost, because of the quality, uniformity and wear of Marathon Ribbons but also gives you the finest typing from the standpoint of appearance.

- Let us send you interesting figures, cold facts, convincing samples to prove that in Marathon there *IS* a difference!

We will be glad to quote you on your regular or special requirements.

**COLUMBIA
RIBBON & CARBON
MANUFACTURING CO., Inc.**
Main Office and Factory

Glen Cove, L. I., New York

BRANCHES

New York, Chicago, Philadelphia, Pittsburgh,
Cincinnati, Nashville, New Orleans,
Kansas City, Milwaukee,
Minneapolis

— also —

LONDON,
ENGLAND

MILAN,
ITALY

SYDNEY,
AUSTRALIA



what sizes and quantities, depended largely on the memory and judgment of the Stock Clerk. The first step in correcting this chaotic condition was to set up a file of price cards and then to develop the stock catalog sheets from these. The perpetual inventory cards were developed at the same time, and as all three sets of records concerned a good deal of similar data, they were logical to work up together. This plan was also a help in the physical arrangement of items in the stock room, whereby similar parts could be kept together. Whenever there is a new price card for a new item, it is entered on the Catalog sheets with the standard price and other data, and a corresponding inventory card is also made out.

When the Inventory Department makes its yearly listing of stock on hand, it fills in the blank column headed "Inventory" with the quantities in stock. This has proved to be a great time-saver, because all of the items are listed in logical order and it is not necessary to write them down before posting the quantities of each. A conservative estimate of this saving is at least 100 hours at each inventory period. Besides this, it is possible to get the inventory to the Cost Department that much sooner.

The inventory quantities are sometimes taken from the perpetual record, but once in a while it is deemed advisable to make a physical check. The sheets are then turned over to the Cost Department, which extends the values into the last column.

The catalog obviously guards against the possibility of ordering some stock items in such large quantities that they will last for years and may become obsolete before being put to use. Like most companies, we have had some unfortunate experiences of this nature. For instance, in 1929, before this record was in existence, a purchase was made of \$250 worth of a certain special type screw. Only a few were used, and the remainder were kept on hand for years. Eventually the type became obsolete so

far as this company was concerned, and they were finally sold at a fraction of what had been paid for them. In other words, it is now possible to keep the inventory down and well balanced, without having substantial sums of money tied up in slow moving or stationary stock.

The catalog sheets have also been found helpful in agitating for a simplification and standardization of the items carried, because they give such very definite visual evidence of its need wherever practicable. The fact that the sheets carry figures for the minimum number of parts it is safe to carry reduces the need for frequent rush orders, and savings of as much as 45% have been achieved by unhurried buying as contrasted with emergency purchases. Where special items are purchased repeatedly from the same source, the latter is given copies of the catalog sheets so as to simplify ordering.

In appraising the value of a stock catalog such as ours, it is well to bear in mind that this company manufactures complicated and expensive semi-automatic and fully automatic packaging machines, which are always designed to meet the customer's specific needs. Consequently no two orders are ever exactly alike, and of course production is by no means on a quantity basis. Nevertheless it is necessary to stock a great variety of parts, or items, in comparatively small quantity, partly because the production in the plant is not large and partly because machinery of the kind made here is subject to frequent changes in design. But the customers want their orders delivered promptly and the Purchasing Department has initiated this catalog with a view to facilitating the maintenance of sufficient stock on hand at all time to avoid delays, but without carrying an excessively large inventory.

THOMAS R. McCULLOCH has been named purchasing agent for the city of Tonopah, Nevada.

YOU DON'T HAVE TO

Run a Newspaper!

TO GET the latest news delivered to your door each morning, you don't need to operate a news plant with facilities for news-gathering, editing, printing and delivery. Daily, you obtain the news from every corner of the world, without difficulty and at low cost, because your local newspaper—a "cooperative service"—supplies it, not only to you, but also to thousands of other business men.

In a similar way a recognized industrial distributor, identified with the National Industrial Distributors' Foundation, provides a "cooperative service" in your locality that enables you to avoid work and expense in getting the bulk of your industrial supplies and equipment. He maintains complete and specialized facilities which relieve you of time-consuming, costly tasks in meeting plant requirements.

By sharing the valuable facilities of this "cooperative service" with other plants in your neighborhood, you can obtain *what you want, when you want it*, and at a cost that reflects the economies of sharing expenses. It will pay you well to call in the man who wears the N.I.D.F. emblem and plan ways to make full use of his money-saving facilities.

Welcome the Man
...who wears THIS PIN



He represents one of the leading industrial distributors whose ability to render complete "cooperative service" has been verified. He offers these combined facilities for saving you work, worry, money:

1. Expert buying service that "narrows-down" your work of selecting supplies.
2. Superior warehousing facilities that enable you to limit plant stocks, and reduce stock-carrying charges.
3. To-your-door delivery that cuts down shipping and trucking expense.
4. One-source supply which enables you to obtain many items with a single order.
5. An information service that gives you latest unbiased product-and-price data without bother or delay.



NATIONAL INDUSTRIAL DISTRIBUTORS' FOUNDATION

★ of the Industrial Supply Research Bureau, 7th and Bainbridge Sts., Richmond, Va.; an activity of the National Supply & Machinery Distributors Assn.; Southern Supply & Machinery Distributors Assn.; and American Supply & Machinery Manufacturers Assn. ★

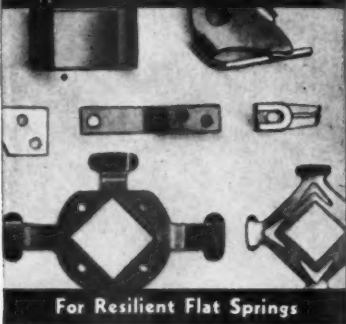
3 IMPORTANT APPLICATIONS

SEYMOUR PHOSPHOR BRONZE



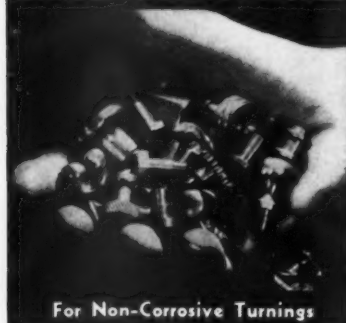
For Fatigue-Resistant Springs

SEYMOUR PHOSPHOR BRONZE



For Resilient Flat Springs

SEYMOUR PHOSPHOR BRONZE



For Non-Corrosive Turnings

WHERE toughness, resiliency and non-corrodibility are important, Seymour Phosphor Bronze is often superior to other alloys for springs and parts. It has extreme resistance to friction and imperviousness to moisture, salt air, etc., and its ability to withstand many cycles of fatigue is little short of phenomenal!

We will be glad to send you, free of charge, a manual on Seymour Phosphor Bronze which we trust will be of value to your company.

SEYMOUR PHOSPHOR BRONZE

THE SEYMOUR MANUFACTURING COMPANY
55 Franklin Street, Seymour, Conn.

PERSONALITIES in the NEWS

FRED W. MILLER, formerly purchasing agent of the National Rubber Machinery Co., Akron, has resigned to take a similar position with Summit Mold & Machine Co. and its subsidiary McNeil Boiler Works. A. M. POULTON succeeds Mr. Miller as purchasing agent at National.

DAVID H. THOMAS, for the past twelve years purchasing agent for the Utah-Idaho Sugar Co., Salt Lake City, has been elected to the Board of Directors of the Utah Manufacturers' Association, for a three year term.

WALTER N. KIRKMAN of Baltimore, Past President of the National Association of Purchasing Agents, is one of the speakers in the current lecture series sponsored by the Richmond (Va.) League of Women Voters, on the general topic of governmental administration. Mr. Kirkman's topic is "Purchasing."

ROY L. JOHNSON has been appointed purchasing agent of the National Life Insurance Co., Montpelier, Vt. Mr. Johnson has for several years been proprietor and manager of a printing business at Randolph, Vt.

DONALD G. CLARK, Controller of Brown & Sharpe Mfg. Co., Providence, and Past President of the N.A.P.A., addressed the Bridgeport Chapter, National Association of Cost Accountants March 18th, on the topic, "The Cost of Purchasing—Can it be Determined and Controlled?"

RALPH M. HORTON of Sioux Falls has been appointed head of the Division of Purchasing and printing in the South Dakota State Finance Department. This division has charge of purchases for all state departments and institutions, including clothing, food, fuel and equipment.



HOWARD E. MARSHALL

HOWARD E. MARSHALL, for the past thirty-six years purchasing agent and director of the Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y., has retired from active service after fifty-eight years. He joined the R. B. & W. organization in 1879 in a clerical position at the old Pemberwick, Conn., plant and his advancement parallels the growth of the company. He will continue to serve on the Board of Directors. P. M. CULYER, assistant purchasing agent since 1917, succeeds Mr. Marshall as purchasing agent.

HERMAN WOLFE was reappointed State Purchasing Agent for Wyoming, at the organization meeting of the new State Board of Supplies last month.

GEORGE A. BRUCE, Purchasing Agent of the San Francisco Bank, is the author of an article on stock room labels in the March issue of *Bankers Monthly*.

DAVID MCK. FORD has been appointed general purchasing agent of the Canadian National Railways. He has been active in railroad purchasing work in Scotland and Canada for thirty-six years, and upon the formation of the C. N. R. System in 1923 became assistant to

R. C. VAUGHAN, director of purchases and stores, and later vice president in charge of purchases and stores. EDWIN A. BROMLEY, general stationery agent for the system, has been named assistant to the vice president, purchases and stores.

HALE G. KNIGHT, formerly purchasing agent for the Restrict Lumber Co., Detroit, has been appointed a member of the Michigan State Liquor Control Commission.

WILLIAM DAVIES, Purchasing Agent of Dominion Foundries & Steel, Ltd., Hamilton, Ontario, addressed a recent meeting of the Lions Club in that city on the topic, "Ethics in Purchasing."

THOMAS P. KIRK has been appointed purchasing agent of the Laclede Steel Co., St. Louis, succeeding S. W. MANSS, resigned. Mr. Kirk joined the Laclede organization in 1919, and has been assistant purchasing agent since 1924.

ARTHUR L. BROWN has been appointed buyer in the Michigan State Purchasing Department at Lansing. He was formerly associated with Swift & Co.

ROBERT C. KELLEY, Purchasing Agent of the Converse Rubber Co., and past president of the New England Purchasing Agents Association, addressed the annual convention of the New England Paper Box Manufacturers Association at Providence, R. I., April 8th.

WALTER KANALY has been appointed purchasing agent for the Union Trust Co., Rochester, succeeding the late Fred Standing.

GUY M. COULTER, Purchasing Agent of the Investors' Royalty Co., Tulsa, has been elected treasurer of that company in addition to his purchasing duties.

WILLIAM H. FINDLATER, formerly assistant purchasing agent for the Buick Motor Company, Flint, Michigan, was named city manager

at a recent meeting of the city commission.

JOSEPH W. NICHOLSON, City Purchasing Agent at Milwaukee, addressed a meeting of the Milwaukee Association of Credit Men at the City Club, March 18th, on the topic, "Centralized Purchasing."

EDWIN T. DRISCOLL has been appointed purchasing agent for Columbia University, New York, succeeding JOHN T. HOPKINS, who resigned on account of ill health.

WALTER KLAGES has been appointed purchasing agent of the Richfield Oil Corporation of New York. His predecessor in the office was CHARLES S. STEVENS.

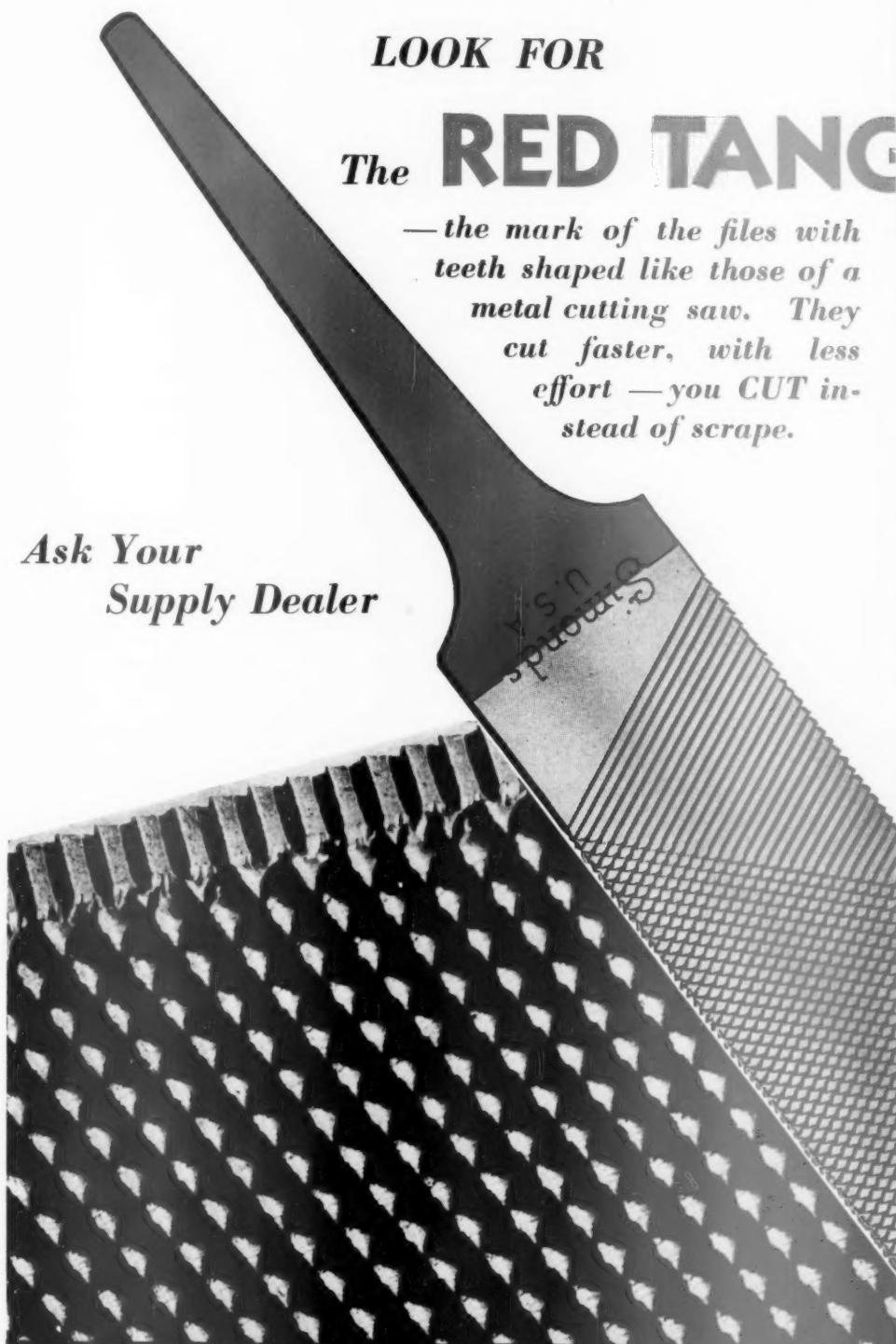
CARROLL L. HOPKINS of Lansing has been named buyer of steel, lumber and heavy materials, ARTHUR L. BROWN of Detroit, buyer of meat and food supplies, and WILLIAM E. GIBSON of Grand Rapids, buyer of grain, seeds and flour, in the reorganization of the Michigan State Purchasing Department.

LOOK FOR

The RED TANG

—the mark of the files with teeth shaped like those of a metal cutting saw. They cut faster, with less effort —you CUT instead of scrape.

**Ask Your
Supply Dealer**



SIMONDS SAW & STEEL CO., Fitchburg, Mass.

APRIL 1937

THE MARKET PLACE



A quick review of the market noting major developments in supply, demand and prices of selected basic commodities

Supply

BURLAP

STRIKE CONDITIONS persisted in Calcutta, causing some concern about production, but output was sufficient to take care of current light business and users are generally covered for three months in advance.

COAL

BITUMINOUS OUTPUT widened steadily in March, attaining a rate of 11,200,000 tons per week, 25% ahead of the corresponding 1936 figure. Operations were suspended April 1 for two days during wage negotiations. Industrial inventories were at about 35 days supply, slightly expanded during the month, but with no special rush to cover on strike threats.

COPPER

PRODUCTION OF COPPER continued to expand, though weather conditions hampered operations in some quarters, and from a world standpoint the increased production was less than had been expected. Blister stocks are gradually building up, but stocks of refined metal were further reduced during the month. Spot supplies are exceedingly scarce and several producers are not accepting new business, but most users are well covered on contract through June and many current purchases specify July deliveries.

COTTON

GOVERNMENT OWNED stocks at the end of March were down to less than 2 million bales, a million bales being released in the past two months. Increased acreage is indicated in virtually every section of the cotton belt, the expansion ranging from 12 to 20%. Government efforts to curb this development are apparently unavailing. The general reduction of mills to a 40 hour operating schedule may curtail production by 3 million yards weekly, or about 10%, resulting in more acute shortage of some constructions.

Demand

TRADING WAS MODERATE, showing some expansion for accumulation against the expiration of present contracts.



INDUSTRIAL CONSUMPTION was brisk and increasing, with every indication of sustained requirements through April, and heavy shipments were called for against contracts. Increased activity in beehive coke also represented a good source of coal demand.

DOMESTIC CONSUMPTION is leveling off, the present high rate of close to 75,000 tons per month probably representing a maximum rate for peace time conditions. The month's sales were slightly over 40,000 tons, the majority going to company owned fabricators. The closing week witnessed some revival of purchasing.



FEBRUARY USE OF COTTON amounted to 664,439 bales, the largest February figures on record. March use, estimated at 775,000 is an all time high. For the past seven months, the increase has amounted to 28% over previous figures. Active orders for gray goods, amounting to 3 weeks production over current output, rebuilt the mill backlog, which had been depleted somewhat in February. Spot demand continues good.

Market

CALCUTTA PRICES FIRMED during the month. Higher costs of raw jute and possible curtailment of output contributed to this development. U. S. prices regained the level of early February and were strongly held.

THE BITUMINOUS PRICE schedule was unchanged during March, but was generally softening in the closing week. Anthracite prices were reduced \$1 to \$1.50 per ton, and by-product coke also declined slightly. Beehive coke was stronger, with the prospect of a sharp advance in the near future, and screenings, being in tight supply, were among the firmest items on the list.

COPPER PRICES WENT into new high ground in March. An advance to 16 1/4 cents on the 8th, the most drastic increase in this upward movement, brought the price to the highest mark since April, 1929, and on the last day of the month a further advance to 17 cents was made. These price developments, as for some time past, were paced by the foreign market. Casting copper was reduced to 1/4-cent below electrolytic, due to easiness of the scrap market, but followed the later advance in the same proportion.

COTTON PROCESS STAGED a spectacular and sustained advance throughout the month. Attaining the 14-cent level during the first week (a new high since June, 1930) quotations went on to 15.25 at the close of the month, with correspondingly high levels in futures. Heavy purchases of cloth, plus the higher cost of staple, were reflected in a general advance affecting yarns, print cloths and sheeting, ranging from a fractional rise to 1 1/2 cents per pound.

MILL COULDN'T HANDLE ORDER ..SCULLY DELIVERED IN 23 HOURS!



One day early this year an Ohio manufacturer wired for prices and delivery on several hundred special sheets. His mill couldn't make the shipment required.

We telephoned prices at 1 o'clock that afternoon . . . promised shipment within 24 hours . . . got the order. We shipped by truck that same afternoon, and the customer (several hundred miles away) got his sheets at noon the following day!

This is an example of the kind of "Scully Service" we're giving at a time when such service is particularly important. With the mills flooded with orders, it's good to know that Scully's huge stocks are quickly available.

We have immense stocks of steel, steel products, copper and brass always on hand in eight warehouses conveniently located. Try us!

Phone, write or wire the warehouse nearest you. Send for our complete Stock List and Reference Book. It's free.



SCULLY STEEL PRODUCTS CO.

Warehouses at

CHICAGO • BOSTON • PITTSBURGH • NEWARK, N. J. • ST. LOUIS
BALTIMORE • ST. PAUL • CLEVELAND

UNITED STATES STEEL

Supply

IRON and STEEL

STEEL OPERATIONS WENT to new high rates in March, attaining a pace of 90.7% as the month came to a close, this representing the greatest tonnage on record. Pittsburgh was the most active center, with an average rate of 94%. Mills which had been considered practically obsolete have been pressed into service, and for nine consecutive weeks the pace in this district has shown an increase. Reserves of raw and semi-finished steel are smaller, and scrap is exceedingly scarce—to the point that an embargo on scrap exports is sought in some quarters. Pig iron is also short, stocks having been drained by export trade. Manufacturers have become highly selective in the nature of business accepted, resulting in short supplies on some items, but close observers state that acute shortage of steel is nominal, rather than an actual condition, no operations being actually curtailed for want of the necessary metal.

LUMBER

PRODUCTION AND SHIPMENTS of lumber increased moderately in March, reaching 59% and 77% respectively of the 1929 weekly average, and maintaining an approximate balance. Southern and western mills are active, but new labor complications threaten operations on the west coast. Canadian imports are small.

NAVAL STORES

RECEIPTS OF NAVAL STORES were of routine nature. CCC stocks of rosin are well liquidated, but about 70,000 barrels of turpentine are still held, with no such favorable opportunity for disposal. The restriction program, which took 14 million cups, or 11%, out of production last fall, will probably be repeated. Response to rosin curtailment has not been so satisfactory, however, in view of the good prices obtained during December and January. The final date for joining the program was extended from March 15 to March 29 in an effort to secure more widespread acceptance.

PAPER

PRODUCTION IS AT PRACTICAL capacity, spot offerings limited, and with orders covering well through the second quarter. Output of North American newsprint is running 18% ahead of last year; mill stocks low; and pulp is scarce due to diversion into rayon and explosives.

Demand

STEEL BUYING is said to be the heaviest ever experienced in peace time, with the full force of the spring expansion not yet felt and with all factors favorable for sustained activity. Heavy items are particularly in demand, construction and the railroads being among the best customers, while orders from the automotive industry are also holding up well. Unfilled orders in the Pittsburgh area are around 3 million tons, for domestic use. Export sales of pig iron continue in heavy volume.



NEW ORDERS WERE slightly down, but were still above production, and the backlog of unfilled orders is relatively high. Residential construction is expanding and the furniture industry is getting under way on a larger scale.

PURCHASES WERE STRICTLY limited in volume as buyers waited for further recessions in the falling rosin market and for definite word as to progress on the production program which will control the size of the new crop. But though a hand-to-mouth buying policy generally prevails, demand is somewhat steadier as varnish makers are coming seasonally into the market.



TRADE IS IN EXCELLENT volume in all branches of the industry, both in respect to new business and contract deliveries. Demand has been well sustained in the face of rising price levels and is apparently soundly based.

Market

INDEPENDENT PRODUCERS joined in the general price advance which became effective about the first of March, carrying the list up from \$3 to \$8 per ton. Merchant steel pipe registered one of the sharpest advances, as much as \$12 per ton, and rail prices also rose steeply. Pig iron advanced \$2, to \$24 per ton, the highest figure since 1926, and at mid-month cast iron pipe was marked up \$5, to \$53 per ton. Costs have increased from nearly every angle. Wages are up. Steel scrap at \$23 is at the highest point in fourteen years. Supplies such as refractory brick have also advanced. And the use of outdated equipment has also raised the average of operating costs.

THE PRICE ADVANCE in southern pine continued, going to \$27.99 the first of March and to \$28.73 at mid-month, a gain of 14½% in two months. Hardwood prices were firm and unchanged.

WEAKNESS CHARACTERIZED the naval stores markets in March. Turpentine sagged from the reasonably satisfactory level of 47 cents (New York) to 42, a new low for the season, and producers are seeking a governmental guarantee of 45 cents minimum without receiving much encouragement in this demand. The decline in rosin was the more spectacular in view of the boom prices which prevailed only two months ago. All grades declined, the lower grades most severely, and the losses in some cases amounted to 70 points in a single day. The list on April 1 averaged fully 25% below the year's high.

PRICES ARE FIRING throughout the paper list. Pulp and waste are higher adding to costs. Kraft paper and practically the entire board list moved upward in March, and some mills have withdrawn all prices.



frigidaire WATER COOLING ACTUALLY COSTS LESS THAN OLD-WAY METHODS

**... and Pays Big Dividends Besides—In Savings—
In Employee Health and Good Will**

• Replacing your old-style system with the new Frigidaire Water Cooling equipment is a sound business investment from every angle. Because Frigidaire does a far better job—and does it for less money! It actually pays for itself in a short time through savings, then continues to earn a big investment return for years to come.

Moreover, a Frigidaire system is a powerful factor in gaining the loyalty and goodwill of employees—getting more work and better work per man. Plenty of cool, refreshing water close at hand,

and always the right temperature for health and satisfaction, means comfort and contentment—greater efficiency, more production—fewer mistakes and accidents.

There is Frigidaire equipment to meet every industrial water-cooling need—completely, efficiently, economically. It will pay you to investigate a Frigidaire system engineered to fit your particular requirements.

... For free survey and estimate, see your nearest Frigidaire Commercial Dealer, or write Frigidaire Division, General Motors Sales Corporation, Dept. 81-4 Dayton, Ohio.



PETROLEUM

CRUDE OIL OUTPUT mounted sharply during March, each successive week setting new records, reaching an average of 3,434,925 barrels daily in the fourth week. Bureau of Mines recommendations for April, set at 3,243,000 barrels daily to meet estimated demand are closer to actual production figures than for many months past. Allowable output has been sharply increased in the Texas, Kansas and California fields. Stocks of crude oil and of gasoline were substantially higher, while stocks of gas and fuel oil were being reduced.

WITH DEMAND for heating oils tapering off, attention turns primarily to the outlook for motor fuels. It is expected that this will be of record proportions in 1937, and inquiry is already improving, but exceptionally heavy stocks are ready in anticipation of this demand. Kerosene was more active than for some weeks past. The export market for Diesel oils has been well maintained.

THE PETROLEUM PRICE schedule was generally firm and unchanged. Fuel oil showed some weakness, as did kerosene. Gasoline, on the other hand, was rather satisfactory. The bulk market was unsettled in the first half of the month, but no break developed and there was sufficient firmness to provide a basis for contracts. The retail market was also free from price wars except for a small area on Long Island.

RUBBER

THE TIGHT SPOT situation in rubber is aggravated by the fact of a lag in permissible exports, amounting to nearly 12,000 tons since the first of the year. Estates stocks are about the same, dealers' stocks at ports are substantially heavier. Cargo space is limited. Native labor has gone on strike on 44 estates, representing 75,000 acres, which may curtail supplies by another 1,000 to 1,500 tons per month. The International Committee continues to act irresolutely, the only change being a liberalization to 90% quotas for the second half of the year, which of course does not relieve the current situation. Potential 1937 supply from all sources is estimated at 1,150,000 tons, which would not permit much rebuilding of depleted stocks.

DEMAND HELD AT HIGH levels, with February and March showing domestic use in excess of 50,000 tons, apparently unaffected by the automotive strike. Factory buying was slow until the closing week, when some heavy purchases for inventory were made. World use in 1936 showed a gain of 23%. A significant trend is the use of rubber in industries outside the tire field. Mechanical goods, taking only 15.66% of rubber in 1929, now account for 22.86%, whereas tires, formerly representing 84% of the total, now account for 77%.

RUBBER PRICES SOARED in an active market, which was largely of a speculative nature. There was a gain of $4\frac{1}{4}$ cents, or nearly 20% for the month. The failure to increase export quotas immediately gave added impetus to the rise. Factories have been said to be holding out for a 20-cent level, but they became active buyers at 25 cents. Tire prices were advanced 6% at mid-month, the fourth increase in nine months.

TIN

TIN QUOTAS FOR THE second quarter have been only modestly increased, to 110%, or about 2,700 tons per month. Suggestions for removing all restrictions, or to set up a buffer stock, were given little consideration.

THE ARMAMENT RACE abroad has been the strongest single factor in tin demand, accounting for heavy consumption above normal requirements, while the usual channels of use are also more than ordinarily active.

THERE IS NO SUCH THING as stabilization in the tin market. The price rocketed within two weeks time from $54\frac{3}{4}$ to 67 cents, within striking distance of the all time high. At 59 it was the highest in eight years. After several sizeable fluctuations, the month closed at 66. Ocean freight has been advanced from \$18 to \$20, and a further advance to \$23 is scheduled for June.

ZINC

ZINC PRODUCTION, both ore and slab, is maintained at a high rate. Stocks, which have been critically low at a 2 weeks supply, were further reduced in early March, but the trend now appears to be checked as output is closer to shipments, though there has been no accumulation of stocks either by producers or users. Unfilled orders have been slightly reduced.

THE HEAVY BUYING—that characterized January and February was tempered in March, with greater stress upon deliveries. Most of the metal is going directly into use, and requirements for May are still open to a large extent.

THE PRICE ADVANCE which was forecast by strength in the London market materialized in early March when slab zinc went up from 6.80 to 7. The following day an even sharper advance carried quotations to 7.50, a level that was strongly held over the balance of the month despite weakness abroad.



REPUBLIC HOSE FOR EVERY INDUSTRIAL APPLICATION

REGARDLESS of your hose requirements for conducting air, water, steam, gases, gasoline, oil, chemicals, acids or fluids of any kind—we can meet them accurately.

Republic produces hose for withstanding heat, high pressure or abrasion—hose of good appearance, of pronounced flexibility or other desired properties. Through exhaustive researches into uses of every description, we can supply the special needs of any industrial application.

Republic Hose is built to our higher established standards by the aid of every modern facility in laboratory and plant. Their high quality assures economical and long-lasting performance.



The **REPUBLIC RUBBER**
Company

Manufacturers of HOSE
BELTING • PACKING
MOLDED PRODUCTS.



YOUNGSTOWN • OHIO

ORDER REPUBLIC RUBBER PRODUCTS FROM YOUR DISTRIBUTOR

FACTORY CALL SYSTEMS of the Amplifier Type

ONE of the interesting by-products of the radio industry is the application of voice amplifying equipment to the field of public address. Although this branch of radio has developed tremendously during the past decade, the utility of such equipment in call systems for industrial use has been neglected.

Before proceeding to a more detailed discussion of the benefits to factory operators who make use of such equipment, it is not amiss at this point to explain just what a Public Address Call System is. Stripped to its essentials such a system consists of: a microphone, an amplifier making use of electronic tubes, and one or more loud speakers. This simplest system is one where the microphone is placed in the office of the plant, generally at the telephone switchboard. The amplifier may be placed nearby in some convenient out-of-the-way place. The one or more loud speakers are distributed through the factory (generally mounted on a column or wall) in such a way that they are

within hearing range at any point in the plant. The speakers are connected by wire to the amplifying equipment in the office and this in turn is connected to the microphone.

To call any one in the building it is only necessary to speak his name into the microphone and the caller's voice will be heard in all parts of the factory. The microphone operator has a switch enabling the microphone to be turned off when not in use. The amplifier has a volume control which is adjusted to give the most satisfactory voice level through the loud speakers. This adjustment is made when the system is installed and need not be changed unless the general noise level in the

*A by-product of the radio industry
offers convenience and economy for
intra-plant communication*

HARRY PARO

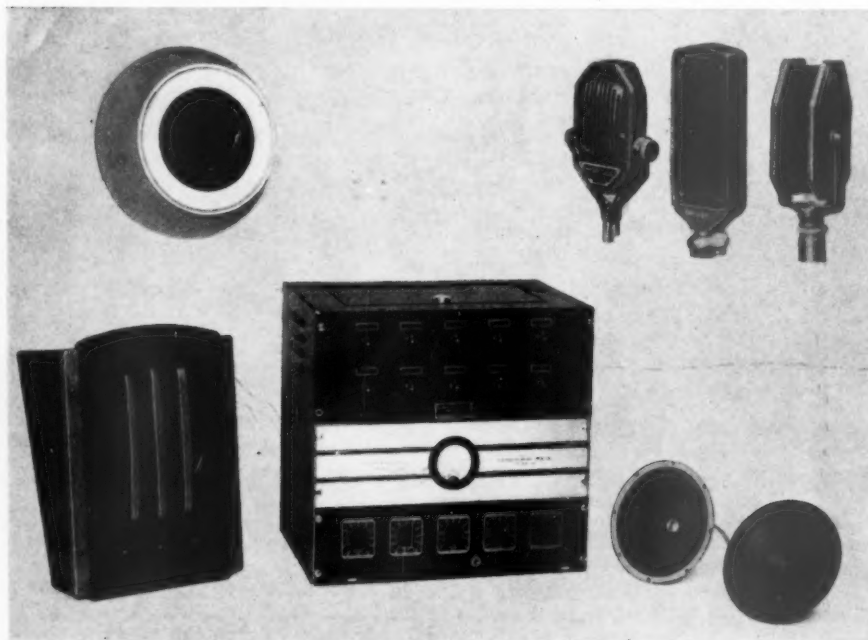
Sound Engineer
Lafayette Radio Mfg. Co.
New York

factory undergoes a marked change due to alteration of production methods.

With modern call systems of good design the quality of reproduction of the voice is excellent. In fact it is better than the speech reproduction of most home radios. This is an important consideration, as a system reproducing the voice poorly is distracting to workers and also is inefficient in that it can cause confusion.

Industrial executives are quite naturally most interested in economies that a call system can make, so some of the advantages of call systems are discussed here.

A great deal of time is lost in most plants in locating employees when they are needed. The usual procedure is to send an office boy into the plant or to telephone to the various foremen until the person is found. This means delay and, what is more important, takes others from their work to aid in locating the desired person. Using the telephone in locating employees also ties up this necessary means of communication when it might be used for more important purposes. If a call system is installed in the plant it is a simple matter to locate any employee if he is in the plant. The call system operator merely speaks the employee's name into the microphone and it is repeated in all parts of the plant. The person called cannot fail to hear the call and immediately walks to the nearest phone and is



Essential parts of a factory call system

there informed as to what is wished of him. Only one employee (the call system operator) has been involved in calling him, since the operator of the call system is usually also the telephone switchboard operator.

Office executives can go out into the plant for inspection tours without fear of missing important phone calls or causing important clients to cool their heels at the other end of a telephone while a search is made for the executive. By means of the call system the busy executive is notified immediately and can answer from the nearest phone in the plant.

In one plant where such a system was installed the telephone switchboard was continually tied up before the call system was installed. Calls coming in from outside were invariably delayed by busy intra-plant lines caused by use of the phone service for locating employees. Since installing the call system, trouble of this type rarely occurs and callers by phone from outside are no longer kept waiting. The employees in this particular plant are appreciative, too, for they no longer have to answer phones and join in will-o'-the-wisp chases for fellow employees.

The plant operator should understand that this type of call system is supplementary to the telephone and frees the telephone for more important services.

As stated above, the simplest system consists of a microphone, an amplifier and one or more loud speakers. Using this arrangement as a starting point a large number of systems can be evolved to meet the peculiar requirements of each fac-

tory. In some instances it may not be desirable to have the whole plant on one circuit. If this is the case it is a comparatively simple matter to add switching equipment at the operator's booth so that any desired number of factory sections can be called either separately or simultaneously. In a plant where there is considerable office space as well as laboratories and actual factory, a sectionalized system such as this may be desirable.

The noise levels in different parts of a factory usually differ so that the voice level required from a call system at one point may be quite high. This high voice level would be objectionable in a quiet office and laboratories. To overcome this it is common practice to have individual volume controls on some of the loud speakers so that they may be adjusted for the most satisfactory level for the area they serve.

Sound coverage of a large plant can be secured by using a small number of powerful loud speakers. This arrangement has several disadvantages, however. First of all, the volume of sound from any one speaker will be very great in the area adjacent to the speaker, and relatively weak at the extremities of the speaker's range. Workers near the speaker will be distracted by the loud voices emanating from the speaker when in use, while those at a distance will be distracted by the indistinctness of the voices and uncertainty as to who is being called. A much better plan is to employ smaller loud speakers placed closer together. Each of these will operate at a lower sound level and thus will be less annoying to those nearby. There will be no areas in which voices become indistinct. Using this plan also eliminates much trouble from echoes reverberating, which add to indistinctness of speech. These troubles are much more pronounced when using a few high-powered speakers. The acoustics of the average factory are such that troubles with echoes are quite common when using this arrangement. The smaller speakers are much cheaper than the larger ones so that

Continued on page 49

WANTED

Assistant Purchasing Agent to handle purchase of radio parts. Prefer man between ages of 30 and 40, who is now employed. Good opportunity with company manufacturing radios since inception. State salary expected. Address Box 400, c/o PURCHASING, 11 West 42nd St., New York, N. Y.

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Imagine the salesman's embarrassment when the shipping clerk showed him a case of goods received from his company—badly damaged and contents in unsalable condition. He had visions of losing an account—wondered how his other customers were receiving goods.

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SIGNODE

AMONG THE ASSOCIATIONS

MARCH 1

Bridgeport—Dinner meeting of the **Sales and Purchasing Agents Association**, at the Stratfield Hotel. A series of sport pictures were shown, including a sketch of Jack Dempsey's career.

MARCH 2

Oakland—Luncheon meeting of the **East Bay Group, Northern California Association**, at the Lake Merritt Hotel. Sound picture, "New Frontiers," presented by Willard Johnson of Westinghouse Electric & Mfg. Co.

MARCH 3

Springfield, Ohio—Meeting of the **Springfield Association**. Speaker: Dr. Rees Edgar Tulloss of Wittenberg College, "Economic Cycles."

MARCH 4

San Francisco—Luncheon meeting of the **Northern California Association**, at the Palace Hotel. Speaker: Newton H. Bell, "Impressions of a 30,000 Mile Trip Around the World."

MARCH 5

Niagara Falls—Inspection visit of the **Buffalo Association**, at the plant of the Carborundum Company. Dinner meeting at Neff's. Speaker: Francis Bowman, "Radio Advertising."

MARCH 6

Chicago—Ladies Night party of the **Chicago Association**, at the Crystal Ballroom of the Blackstone Hotel. Dinner dance, entertainment, and cards. E. L. Van Vechten was chairman of the committee in charge.

MARCH 8

Boston—Annual products exposition of the **New England Association**, at the Hotel Bradford.

Luncheon meeting. Speaker: John E. Alcott of Alcott, Thoner & Marsh, industrial designers, "New Products for New Profits."

Afternoon session. Demonstration of the Stroboscope, with two reels of Edgerton speed film and explanatory talk by H. W. Lamson of General Radio Co.

Banquet session. Speaker: Bennett Chapple, Vice President of the American Rolling Mill Co., Middletown, Ohio, "New Frontiers of Business."

Erie—Meeting of the **Erie Association**, at Johnny Knoll's Tavern, Harborcreek. Speaker: Attorney Francis B. Quinn, "History of the Supreme Court, and the Proposed Reorganization."

Wyomissing—Meeting of the **Reading Association**, at the Iris Club. County Commissioner Amos N. Leshner discussed the county budget and taxes.

New Orleans—Dinner meeting of the **New Orleans Association**, at the Jung Hotel. Speaker: Dr. Rignay D'Aunoy of the Louisiana State Medical Center, "The New Charity Hospital." The nominating committee presented the following slate of officers for 1937-1938:

President, Austin Leftwich of Tropical Printing Co.

Vice Presidents, A. G. Clark of McWilliams Dredging Co., and L. E. Stein of Standard Fruit & Steamship Co.

Secretary, Frank J. Basile of National Bank of Commerce in New Orleans.

Treasurer, G. A. Lyncker of American Sheet Metal Works.

National Director, C. J. Alexander of Shell Petroleum Corp.

Alternate Director, Stephen B. Burks of Loose-Wiles Biscuit Co.

MARCH 9

Milwaukee—Dinner meeting of the **Milwaukee Association**, at the Elks Club. Speaker: Fred Robbins of Bliss & Laughlin, Inc., "Production of Cold Finished Bar Steel."

Tulsa—Meeting of the **Tulsa Association**. Speaker: C. P. Parsons, Vice President of Halliburton Oil Well Cementing Co., "Controlling Nature's Fury." The talk was illustrated with motion pictures of burning oil and gas wells and of drilling operations in the Louisiana bayous and the ocean fields of the Pacific coast.

Oakland—Luncheon Meeting of the **East Bay Group, Northern California Association**, at the Lake Merritt Hotel. Speaker: Bestor Robinson, "Climbing Mt. Waddington," illustrated with motion pictures.

Cincinnati—Meeting of the **Cincinnati Association**, at the Hotel Gibson. Speaker: I. A. Balinkin, Research Director in Physics, University of Cincinnati, "From Liquid Air to Liquid Light," a non-technical lecture illustrated with a series of actual experiments.

New York—Dinner meeting of the **Metropolitan Purchasers' Assistants Club**, at the Hotel Brittany. Motion picture, "Testing Tells the Tale," showing various stages in the testing of petroleum products before they are marketed. Discussion led by F. M. Ellis of Standard Oil Co. of N. Y. Talk by Neill A. Ray: "Just Imagine."

MARCH 10

Kansas City—Meeting of the **Kansas City Association**, at Hotel President. Discussion centered around the Kansas City products display to be sponsored by the association April 14th, and the national convention at Pittsburgh in May.

MARCH 10-11

Philadelphia—Annual products exhibition of the **Philadelphia Association**, at the Penn Athletic Club, presenting more than sixty informative displays by manufacturers and distributors of industrial products.

Wednesday luncheon meeting. Speaker: Lowell Thomas, radio commentator, author and world traveler, "Adventures Around the World and in the Air."

Thursday luncheon meeting. Speaker: Judge Harold B. Wells of the Court of Error and Appeals of N. J., "The Best Philosophy of Life."

Thursday dinner meeting. Entertainment, and awarding of exhibit prizes.

MARCH 11

Dayton—Dinner meeting of the **Dayton Association**, at the Engineers Club. Speakers: County Prosecutor Nicholas F. Nolan, "The Book of Rules," and District Vice President Arthur J. Goetz of Monroe, Mich., "National Association Affairs."

Holyoke—Dinner meeting of the **Western Massachusetts Association**, at the Hotel Holyoke. Speaker: Miss Helen U. Kiely, chief chemist of the American Writing Paper Co., "The Manufacture of Business Papers." The meeting was preceded by an inspection visit to the laboratories of the company and an observation of manufacturing processes at the Linden Division.

Los Angeles—Dinner meeting of the **Los Angeles Association**, at the Jonathan Club. Cy T. Hofmeister, Buyer for the Standard Oil Co. of California, and chairman of the association's Educational Committee, led a "Purchasing Clinic" embracing the following topics: Follow-up; Charting of Commodities; Catalog Files; Price Records; Telephone Purchases; Current Buying Policy; Labor Problems in Los Angeles; Inflation; Reciprocity; Confidential Price Information; Revision of Requisitions; Salesmen's Contact with Factory Officials; Purchasing and Management Relations; Restricted Hours for Interviews; Association Service.

San Francisco—Luncheon meeting of the **Northern California Association**, at the Palace Hotel. Speakers: Clarke E. Wayland, Vice President of Western Asbestos Co., "Sound Control"; and William C. Hubner, Purchasing Agent and Traffic Manager, A. M. Castle & Co., "Labor Conditions Affecting the Steel Industry."

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Chicago—Meeting of the **Chicago Association**, at the Hotel Sherman. Speaker: Alfred D. Fowler, plastics engineer for the General Electric Co., Chicago, "Plastics."

Seattle—Meeting of the **Washington Association**, at the Washington Athletic Club. Speakers: Arthur Merrill Brown, Jr., of San Francisco, "Golden Gate Bridge Construction and Fiesta"; Prof. Joseph Demmery, University of Washington, "Economic Review and Outlook"; District Vice President Wayne R. Allen, Los Angeles, "N.A.P.A. Affairs." There was also a round table discussion on the topic, "Solving Tough Purchasing Problems."

MARCH 12

Birmingham—Meeting of the **Birmingham Association**, at the Hotel Redmond. Speaker: J. D. Chichester, "The Alabama Luxury or Sales Tax."

Buffalo—Meeting of the **Buffalo Association**. Speaker: Dr. Thomas of Westinghouse Electric & Mfg. Co., Pittsburgh, "Value of Research."

MARCH 15

Duluth—Meeting of the **Twin Ports Association**, at the Spalding Hotel. Speaker: George A. Neesham of Wyckoff Drawn Steel Co., Chicago, Vice President of District No. 3, N.A.P.A.

MARCH 16

Pittsburgh—Meeting of the **Pittsburgh Association**, at the William Penn Hotel. Speaker: George A. Renard, Executive Secretary, N.A.P.A., "The Trend of Commodities."

New York—Meeting of the **New York Association**, at the Builders Exchange Club. General discussion of "Contracts," led by Stuart F. Heinritz, Editor of PURCHASING, M. G. L. Harris of Standard Gas Equipment Corp., and A. L. McMillan of Warner-Quinlan Co.

Louisville—Dinner meeting of the **Louisville Association**, at the Kentucky Hotel. A revised constitution was adopted. Discussion concerned the flood experiences of various members and their companies.

MARCH 17

Los Angeles—Inspection visit of the **Los Angeles Association**, at the new plants of the Crown Willamette Paper Co. and Zellerbach Paper Co.

Baltimore—Meeting of the **Baltimore Association**. Speaker: W. W. Pagan of the Industrial Corp., engineer in charge of laying out the municipal airport. He outlined the conditions leading up to the present situation, and of the plans for future development.

MARCH 18

Cleveland—Inspection visit and dinner of the **Cleveland Association**, at the plant of the Glidden Co.

Albany—Executives Night meeting of the **Eastern New York Association**, at the Fort Orange Club. Speaker: A. J. Brissette, executive assistant of the National Association of Manufacturers of the United States, "The International Situation—Economic Aspects of War, Peace, Inflation, and World Recovery."

Montreal—Executives Night meeting of the **Montreal Association**. Speaker: George A. Renard of New York, Executive Secretary, N.A.P.A.

San Francisco—Dinner meeting of the **Northern California Association**, at the Palace Hotel. Speaker: Dr. J. C. Geiger, Director of Public Health, City and County of San Francisco, "Observations on a Recent Trip to Australia and the South Sea Islands."

Toledo—Meeting of the **Toledo Association**, at the Waldorf Hotel. Speaker: Maurice J. Meyer of the Bliss Bowman organization, formerly assistant attorney general at Toledo. Sound film, "Inside Facts on Sight Seeing," presented by J. P. Everett of the Toledo Edison Co.

Salt Lake City—Luncheon meeting and tour of inspection, by the **Utah Association**, at the University of Utah. President George Thomas and Purchasing Agent S. W. Mote of the University conducted the group about the principal buildings and exhibits.

MARCH 22

Bethlehem—Meeting of the **Lehigh Valley Association**, at the Bethlehem Club. The program included motion pictures and a talk by Francis D. Bowman, advertising manager of the Carborundum Co., Niagara Falls, N. Y.

Worcester—Meeting of the **Worcester County Purchasing Agents Club**, at the Bancroft Hotel. Speaker: Edwin B. George of the research and statistical department, Dun & Bradstreet, Inc., "Operation of the Robinson-Patman Act."

Providence—Meeting of the **Rhode Island Association**, at the Biltmore Hotel. Speaker: Charles P. Sisson, formerly assistant U. S. attorney general, "The Supreme Court Situation." Sound film, depicting the building of the San Francisco-Oakland Bay Bridge.

MARCH 23

Oakland—Luncheon meeting of the **East Bay Group, Northern California Association**, at the Lake Merritt Hotel. Sound motion picture, "Grime Marches On," presented through the courtesy of Ray Sanders, Turco Products, Inc.



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Wallingford—Meeting of the **Connecticut Association**, at the Oakdale Tavern. Speaker: Charles Rodda of Prentice-Hall, Inc., New York, "Legislation that Affects Purchasing Agents."

New Orleans—Inspection visit by the **New Orleans Association**, at the plant of the Lone Star Cement Corporation.

Tulsa—Closed meeting of the **Tulsa Association**. Discussion topic: "Phases of Purchasing Department Procedure."

MARCH 24

Rochester—Dinner meeting of the **Rochester Association**, at the Rochester Club. Speaker: Dr. John C. Armstrong of St. Bonaventure College, historian, economist and lecturer.

Syracuse—Meeting of the **Syracuse Association**, at the Hotel Syracuse. Speaker: George A. Renard of New York, Executive Secretary of the N.A.P.A.

Cambridge—Inspection visit of the **New England Association**, at the Harvard University Observatory, through courtesy of Prof. Shapley and Purchasing Agent W. G. Morse of the University.

MARCH 25

San Francisco—Luncheon meeting of the **Northern California Association**, at the Palace Hotel. Sound picture, "Twenty-four Minutes in El Dorado," presented by G. W. Wickland, through courtesy of the Wells Fargo Bank & Union Trust Co.

Seattle—Inspection visit of the **Washington Association**, at the plant of the Olympic Foundry Co., including a trip through the new malleable iron foundry, the only one of its kind on the Pacific Coast north of San Francisco.

MARCH 30

Oakland—Luncheon meeting of the **East Bay Group, Northern California Association**, at the Lake Merritt Hotel. Speaker: Wayne Listerman, Acting Agent, Federal Bureau of Investigation, "The Set-up and Operations of the Department of Justice."

Catalog 224 of the Hanna Engineering Works, 1765 Elston Ave., Chicago, shows photographs, diagrams, and dimensional data tables for a line of pressure cylinders, also valves and hoists.

*

Neenah Paper Co., Neenah, Wis., is distributing a very useful guide to standard ruling, punching and perforating, for reference in specifying and designing bookkeeping forms for all types of binders and for standard bookkeeping machines.

*

Bulletin "D" of the Bijur Lubricating Corp., Long Island City, N. Y., is an attractive 16-page illustrated booklet devoted to centralized, automatic, metered force feed lubrication for modern high speed production machinery.

Booklets

"A New High in Chimneys" is the title of a folder issued by the Weber Chimney Co., 332 S. Michigan Ave., Chicago, illustrating and describing the world's largest chimney, recently completed at Chin-nampu, Korea. The foundation is 97 feet in diameter and contains 3,200 cubic yards of concrete and 120 tons of bars. The chimney itself, rising 600 feet above the foundation, is 25 feet in inside diameter at the top, and the thickness of the shaft tapers from 37 to 7 inches. The lining, 180 feet high, is six inches thick, separated from the outer shell by a 4-inch air space.

A new 16-page bulletin of the Airtherm Mfg. Co., 1474 S. Vandeventer, St. Louis, Mo., describes a complete line of centrifugal fan unit heaters, adapted for large area installations, either for floor settings or for ceiling suspension.

A new folder known as Bulletin No. 16, distributed by the Dardelet Threadlock Corp., 55 Liberty St., New York City, contains diagrams and non-technical explanation of the principles of a self-locking screw thread that provides a positive lock of bolt and nut without the use of lock washers or nut-holding devices.

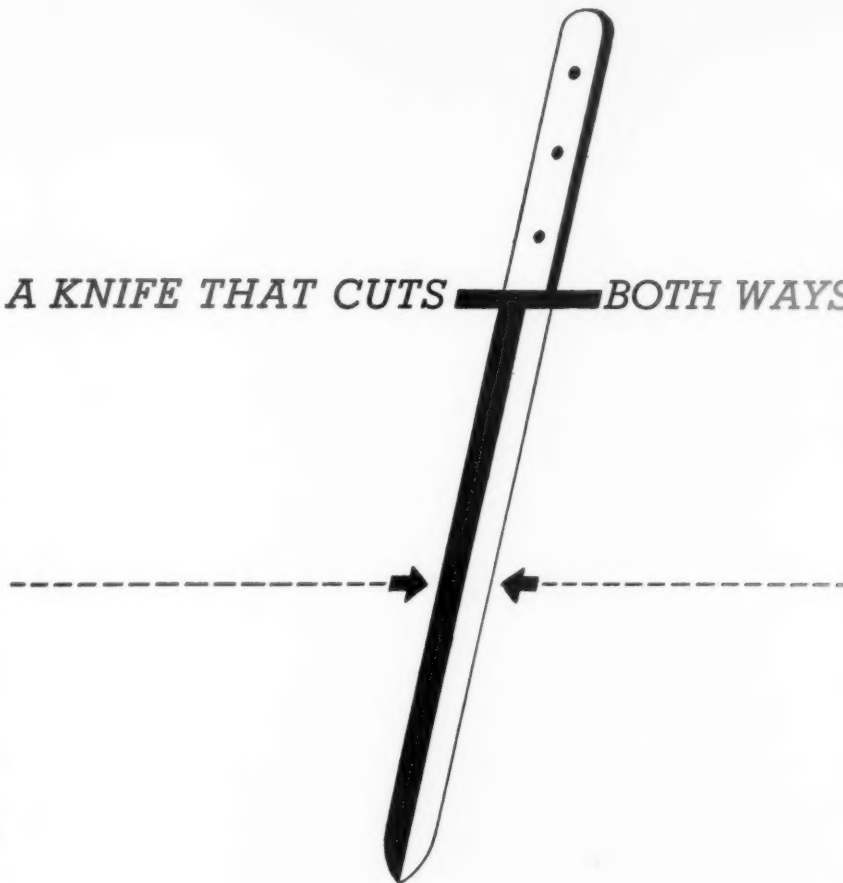
Catalog EN-96 of the Leeds & Northrup Co., 4901 Stenton Ave., Philadelphia, is entitled "Apparatus for Hydrogen-Ion Concentration (pH) Measurements in Laboratory and Plant." The apparatus described is used in research, analytical tests and process control in a great variety of fields of applied chemistry.

A strikingly original booklet prepared by the L. L. Brown Paper Co., Adams, Mass., is called "Blazing a Trail through Rag Continent Jungles." The theme of the book is a clarification of the ambiguous quality designation of "Rag content" as applied to paper, and a guide to the selection of proper grade.

The second edition of the dial gauge catalog is now being distributed by the L. S. Starrett Co., Athol, Mass. It contains 48 pages, covering a comprehensive line of dial indicators for standard and special applications, supplemented with informative data on construction and design, assembly, and service.

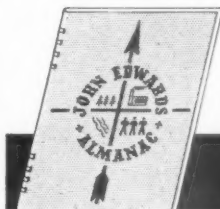
Bulletin 501 of the Reliance Electric & Engineering Co., Ivanhoe Road, Cleveland, Ohio, is a general presentation of motor-generator sets, which have been found efficient and economical in many plants where a poor power factor has resulted in high power costs.

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Purch. Apr., '37

Obituary

GRANT S. BOYD, Purchasing Agent of General Steel Wares, Ltd., Toronto, died at his home in that city February 20th, of a relapse following a siege of pneumonia which had apparently been successfully passed.

DANIEL L. MAHER, 59, for the past thirty-eight years purchasing agent and chief clerk of the Hicks Coal Co., Leechburg, Penna., died at the West Penn Hospital, Pittsburgh, February 28th, of complications following an emergency operation.

CHARLES THOMAS DOERR, 68, since 1920 purchasing agent for the Alabama Power Co., died in a Birmingham hospital, March 3rd. Mr. Doerr was for many years connected with the Birmingham Electric Co., resigning to serve the government at the Muscle Shoals nitrate plant during the World War. Since that time he had been purchasing for Alabama Power Co. He was a charter member of the Birmingham Purchasing Agents Association and served a term as national director. He was also active in the Public Utility Group,



CHARLES T. DOERR

Try this new STARRETT **S-M** MOLYBDENUM Hacksaw Blade

You'll find it makes a big difference when you have a real metal cutting job to do. The combination of long-wearing Molybdenum and the special Starrett heat-treating process makes a blade that will stand up longer and cut fast even through tough metals like nickel, monel, stainless steel, high speed steel, tool steel, phosphor bronze, etc. Order a trial supply from your distributor. Write for the revised Starrett Catalog No. 25P.

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N.A.P.A., and was chairman of the program committee at the time of the group conference held in Birmingham seven years ago.

WARNER E. WILLIAMS, 72, formerly purchasing agent of the International & Great Northern Railroad at Palestine, Texas, died at Houston March 10th. In recent years Mr. Williams served as an operating official for the M. K. & T. lines at Parsons, Dallas, and St. Louis.

GRANT C. DEETER, 67, Purchasing Agent for the Speer Carbon Co. and International Graphite Co., St. Mary's, Penna., died at his home in that city March 15th of a heart attack.

ORLO A. FOOTE JR., 48, formerly purchasing agent for the Franklin (Penna.) Railway Supply Co., for ten years, died at his home in Cleveland Heights, Ohio, March 20th. Mr. Foote, a native of Cleveland, had been in poor health for a number of years, and retired from active business five years ago.

GEORGE ALBERT CARMEN, 57, Purchasing Agent for the Ambassador Hotel, Los Angeles, died at the Hollywood Hospital March 20th. Mr. Carmien was a native of France, but came to this country as a small boy fifty years ago.

New Officers

The California State, County & Municipal Purchasing Agents Association, in session at Sacramento, February 25-27, elected the following officers for 1937-1938:

President, Arthur G. Mel-drim, County of Kings, Han-ford.

Vice President, Mel To-briner, County of Alameda, Oakland.

Secretary-Treasurer, Charles Christopher, County of San Diego.

The 1938 convention will be held at Del Monte.

The Almanac of Office Equipment is a 384-page book, bound in stiff paper covers, covering the use and care of office machines, and providing a ready reference for practical information leading to last-ing and efficient service from this type of equipment. It supplements manufac-turers' instructions and makes numerous suggestions for extending the application to new uses. It deals separately and specifically with standard models of type-writers, dictating machines and acces-sories, duplicators, adding machines, ad-dressing machines, calculating machines, bookkeeping and accounting machines. Published by the Edward H. Harris Or-ganization, 540 North Michigan Ave., Chicago, at \$2.50 per copy. Upon re-quest made on your company letterhead, copies will be sent on approval for 10-day examination.

Catalog No. 14 of the Federbush Co., 91 Seventh Ave., New York City, is a con-venient index to a comprehensive line of loose leaf binders, catalog covers and sales equipment, memo books and visible record equipment. The binders include the ring, post, prong and zipper types, suitable for everyday use or for transfer and storage files. The catalog contains 180 pages, bound loose leaf style, with a unique mar-ginal guide for ready reference.

"How to Belt Your Drives for More Profit" is the title of a handbook on leather belting issued by E. F. Houghton & Co., Philadelphia. It contains 40 pages, handsomely illustrated and printed in two colors; includes a variety of helpful infor-mation regarding belt drives, supple-mented by transmission data, engineering tables and belt formulae.

Factory Call Systems

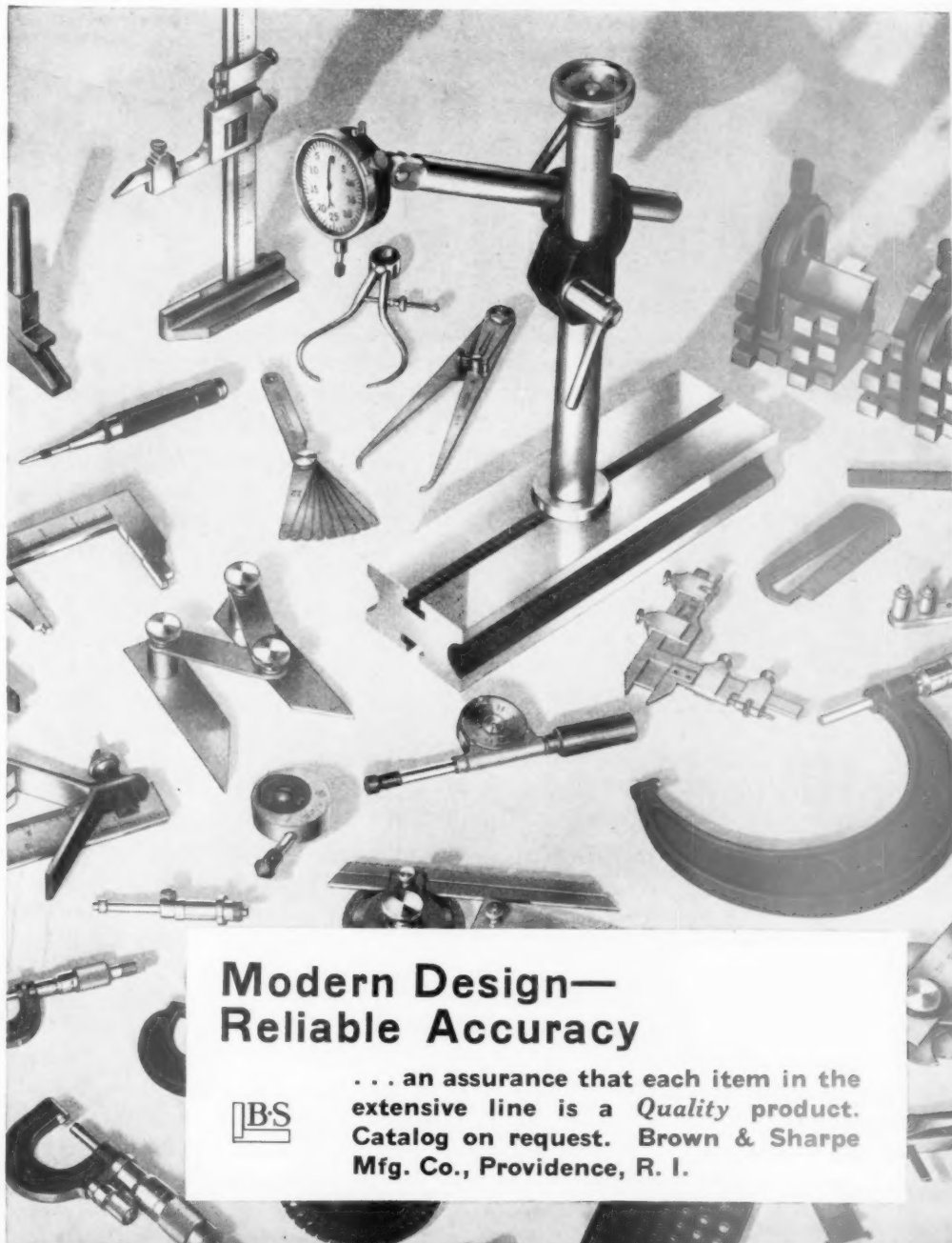
(Continued from page 41)

the use of additional loud speakers adds little if anything to the cost of a complete system.

The only electric current used is that needed for the amplifier. The amplifier is left on continuously dur-ing the day but the operator's con-trol switch cuts the main power sup-ply on and off. Only the filaments or heaters of the vacuum tubes in the amplifier are left operating continu-ously and take current from the line when the operator is not calling

someone. This current is very small in comparison to the current drawn when all the power is applied to the tubes by turning the switch for talk-ing. Since full power is used only momentarily at the time a person is called, the total current drain per day is small. In most factories the electric current source is shut off by a master switch at the end of the day. This turns off the amplifier as well, so that it is not necessary to touch the amplifier controls from one day to the next.

The use to which a call system is put depends, of course, upon the



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the highest-powered Kaplan turbines ever built,
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WELDING *by* SMITH

wishes of the factory management, but there are several common uses which are mentioned here only to show the possibilities. The simplest operation is that which has been assumed throughout this discussion. This method uses it only to call persons to the nearest phone or some particular point which has been designated by the management. The only words ever spoken over the system in this case would be the name of the employee called. Thus, if John Jones is wanted, the operator simply says "John Jones" into the microphone. Other applications may require the giving of more detailed instructions, thus, "John Jones, telephone" or "John Jones, in the office."

To use the system for more detailed announcements than this is distracting to workers and in some cases disrupting of work. For some reason, common instructions of a detailed nature sound ludicrous when announced over a loud speaker.

A few questions which might be asked by factory operators together with answers are appended here.

Does the installation of a call system entail much complicated wiring?

No. No power wiring is required aside from plugging the amplifier into the nearest electric outlet. The wiring from the amplifier to the speakers consists of ordinary telephone type twisted pair which can follow any convenient path. In a system where there is no switching arrangement to announce over different sections of the plant the various speakers can be tapped onto a single line. If a sectionalized system is used it will be necessary to run as many twisted pair lines as there are sections. All speakers in any section are tapped on to the line for that section.

How frequently does a system require servicing?

In the ordinary run of events a system should give no trouble at all for periods of eight months to a year. At this time it may be necessary to replace one or more vacuum tubes in the amplifier, a simple operation. Frequently, however, systems will run for several years without the

necessity of even tube replacement. This of course is an unpredictable factor.

How large an amplifier should be employed?

This depends entirely on how many loud speakers are used, how far apart they are and at what sound level they are to operate. The engineers of the company installing the equipment are best qualified to make this estimate. While there is no point in using a powerful amplifier with a system employing only three or four small speakers, the writer recommends a small amount of "reserve power" to assure life long operation of the system.

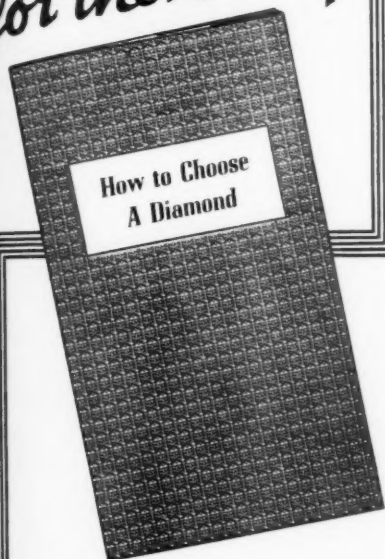
Air Express

(Continued from page 25)

was ready to contract with the air lines of the country as soon as they were in a position to give dependable service.

The first regular air express service was started on September 1, 1927, and this was extended from time to time. On February 1, 1936,

This Useful **BOOKLET** *is Yours* *for the Asking*



This Booklet, "How To Choose A Diamond", records a radio address delivered by Mr. Lawrence S. Mayers over station WEAf, in New York.

Out of a long experience in the importation of diamonds and expert appraisal of diamond values, Mr. Mayers offers information and practical suggestions of real value to any one interested, whether from the standpoint of wishing to know more about diamonds or as a prospective purchaser of these precious stones.

The Coupon attached will bring you a copy.

L. & C. MAYERS CO.
INCORPORATED
DIAMOND IMPORTERS - WHOLESALE JEWELLERS
545 FIFTH AVENUE
NEW YORK

ALBANY — BUFFALO — HARTFORD — PHILADELPHIA

L. & C. MAYERS CO.
545 Fifth Ave.
New York

Please Send The Booklet
HOW TO CHOOSE A DIAMOND

FIRM NAME

ADDRESS

Send Attention of

L. O. Head, president of the Railway Express Agency, signed contracts extending air express service over seven additional lines. As of April 1, 1937, the agency had contracts with a score of the air lines of the country to handle every detail of their express business except the actual flying of it.

Under the provisions of these contracts, Railway Express offers a nation-wide high-speed service direct to and from more than 200 airports, and air-rail service to and from 23,000 offices in the country manned by 57,000 experienced men and serviced by 10,000 motor vehicles, providing day and night and holiday pick-up and delivery service.

By the foreign service of Railway Express, shippers reach remote parts of the world, by all air or part air and part surface express, in the shortest possible time.

Frequency of plane departure has been an important factor in the growth of the air express business. In the regularly scheduled service between New York and Chicago, for example, where more pound-miles probably are flown than over any similar territory in the world, there are thirty-eight daily flights of planes carrying passengers and express. These are augmented by special all-express planes whenever traffic requires.

More than 2,000 tons of air express were flown by the Railway Express in the first full year of expanded service ending January 31, 1937. This visualizes the extent to which Americans are using the fastest present method of package transportation and delivery.

Gross revenue from air express for the twelve-month period increased 67½% over the gross revenue of the old and new contract air lines for the corresponding period of 1935-36.

The half-million mark was approached in the total number of shipments. Most of the 487,299 consignments for the year were carried by 500 regularly scheduled planes. There were, however, many occasions during the twelve months when the volume of business called for the dispatching of planes loaded

QUALITY WRENCHES

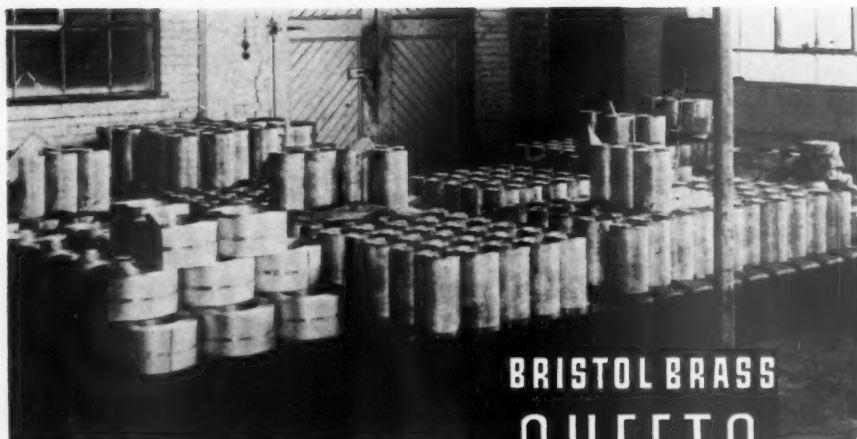


GENUINE COES KNIFE
HANDLE WRENCH
Number 92

BEMIS & CALL
Company

SPRINGFIELD, MASS.

SOLD BY LEADING DISTRIBUTORS



VIEW of a corner in our
SHEET BRASS STORAGE

BRISTOL BRASS SHEETS

AVAILABLE IN SIZES
ranging from .005 to 1-inch thick and
in widths from 3/16 to 16 inches.
Coils and lengths.

ACCURATE THICKNESS
assures uniformity of size of the manu-
factured products.

SMOOTH SURFACE
for polishing; nickel or chromium
plating, and enameling.

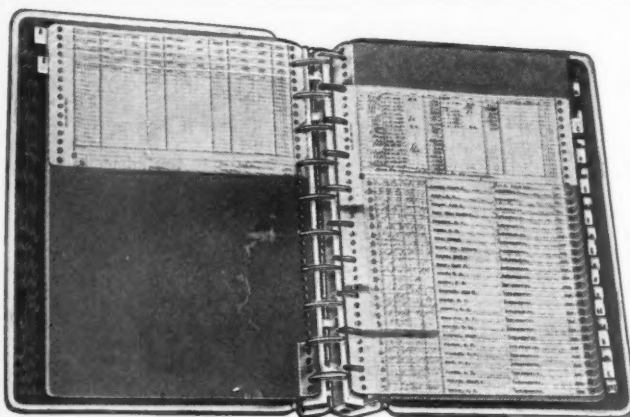
TEMPERED and ANNEALED
to assure fine grain in spinning, bend-
ing and forming.

Get in touch with our nearest branch sales office.

Providence - New York
Cleveland - Detroit - Chicago
or write direct to



THE BRISTOL BRASS CORP.
BRISTOL, CONN.



**VISIBLE
RECORDS
WILL
SPEED
YOUR
WORK AND
INSURE
ACCURACY**

Purchase Records, Quotation Records and Perpetual Inventories are among the most active and most valuable records of an organization. For this reason, they should be maintained in Visible Record Binders for quick reference and protection against loss.

COMPLETE OUTFITS FOR VISIBLE RECORDS

Complete outfits are available for any of the three records mentioned above. They include: Visible Index Binder, Index Sheets with insertable tabs and a full supply of forms for the outfits described. Write for sample sheets and booklet illustrating visible records for these and other uses.

OUTFIT FOR 300 ITEMS \$16 OUTFIT FOR 500 ITEMS \$24 OUTFIT FOR 1000 ITEMS \$36

Cesco

THE C. E. SHEPPARD CO.
4401—21st St., Long Island City, N. Y.

to capacity with express and carrying no passengers. Ships are always available for this purpose.

With the speeding up for the service since it was started in 1927 has come a rate decline of approximately two-thirds. Shippers paid \$75 to express a 25-pound package from Boston to San Francisco by air in 1927; they now pay \$24. Shipments of this weight between New York and Chicago cost \$25 in 1927; they now cost \$7. The greatest reduction in rates has been between New York and Boston, where the original rate was higher in proportion than elsewhere in the country. A package weighing twenty-five pounds flown from New York to Boston set the shipper back \$40 in the early days; now the charge is \$2.

An increase of 71.7% in the number of air express shipments in and out of New York City for February, 1937, over February, 1936, is believed to reflect a fair cross section of air express increases for the entire nation. This belief is based upon the results of an analysis of the 56,105 air express shipments made for the nation last December. Almost every other one of these shipments, it was found, either started or stopped at New York City.

Printed matter and matrices, with a total of 5,567 shipments in and out of the city for February, showed an increase of 3,505 over the corresponding month a year ago. Clothing, hats, and lingerie gained 1,441; broadcasting transcription records and radio parts, 1,245; motion picture films and news photographs, 1,111; drawings and blueprints, 525; jewelry, 510; electrotypes, 493; manuscripts, 266; furs, 245; cancelled checks, 190; music, 85; liquor, 52.

In his report designating aviation as "the industry of 1937," Roger Babson said that "the express industry in cooperation with the transport industry is actually delivering the goods. . . Coordination of air express on a nation-wide scale has been accomplished. . . With the growth of volume, separate planes for express are being added as required . . . When you order by air

Strictly Personal



THE office cooler is common ground. But AJAX, with its health protection and exclusive features, is an uncommon drinking cup service. It is strictly personal—always.

Everyone in the office—executive, secretary, errand boy—appreciates the convenience and distinct advantages of AJAX. They are made of fine, pure paper, leak-proof and free of waxy flavor. Each cup is delivered from the dust-proof Dispenser bottom first, used by only one person, and promptly discarded. In loading the Dispenser, or in using the cups, no hand ever need touch the rims.

This same personal service is a health protection and time-saver in the factory, too. Unbreakable steel or Bakelite Dispensers, though holding 300 cups, take up little space—can be conveniently placed to save steps. There is a choice of colors, in Wall or Cooler types.

On your letterhead, request Free Cup Samples, in this attractive cigarette humidor; also name of nearest supplier.



LOGAN DRINKING CUP CO., DIV.

United States Envelope Company
68-P Prescott St., Worcester, Mass.
270 Broadway, New York, N. Y.
221 No. LaSalle St., Chicago, Ill.

PACIFIC COAST ENVELOPE COMPANY, DIV.
416 Second St., San Francisco, Cal.



express, the goods themselves may arrive in your receiving department at the same time you are opening the acknowledgment letter."

Arthur G. Hopcraft

(Continued from page 15)

be back home for birthdays and similar important family events; today the greatest thrill he gets from golf is the opportunity for companionship with his son.

A trick knee, resulting from a fracture sustained in blasting an errant golf ball from the rough, has forced him to give up handball, once a favorite sport. But he still clings to his hobby of long walks in the open country. It is not generally known that at conventions and on all his busy travels, Art Hopcraft is habitually up at the crack of dawn, hours before the business of the day is scheduled to begin, and away from the hotel for a brisk, exhilarating hike. His familiarity with practically all of the principal cities of the United States and Canada extends far beyond the limits of the business section and the routine sight-seeing tours. He and the dog regularly start their Sundays with a five or six mile hike, and it's quite likely to be repeated in the afternoon.

Looking back over the years, he is impressed by the fact that he has been singularly fortunate in his friendships. There are hundreds, not only in Cleveland but throughout the country, who count themselves fortunate to have Art Hopcraft for a friend. —S. F. H.

"As Steel Goes—So Goes Pittsburgh"

(Continued from page 27)

San Francisco-Oakland Bay Bridge, constructed by the American Bridge Company, will long remain a monument to steel's might.

"As Steel goes, so goes Pittsburgh." Within the last year steel in Pittsburgh has made vast strides toward recovery from the depression. Steel has advanced and pros-

Your RECORDS ARE VITAL to
your business

This booklet
will help you to buy
records and station-
ery more efficiently



Your records are most serviceable, your stationery most impressive, when made from the right kind of rag-content papers. But rag papers are so numerous, so vague, so confusing that it has been utterly impossible to select them intelligently or use them with maximum economy.

Now, at last, is a brief booklet which blazes a clear trail through the jungles of the Rag Continent. It guides you around the pitfalls, shows you how to choose the correct rag-content papers for your records and stationery—how to do so at no extra cost, perhaps at an actual saving.

Write today for your copy, using your letterhead, please. L. L. Brown Paper Company, Adams, Mass.

L.L.BROWN
RECORD and
CORRESPONDENCE
PAPERS



CLARK BROS BOLTS



**Time
Tested and
Time Proven**

There must be something unusual about a service which holds customers fifty years and longer.—Try it!



for Smooth Running
BEARINGS



Bearing assemblies in products designed for industrial, transportation and household appliance lines have varying performance demands. Abbott Bearing Balls meet them all. Uniform dependability is assured because samples from each production load must pass tests for structural strength before the lot is accepted for grading and inspection. Stock sizes from 1/8"-5/8" in several tolerances. You can rely on Abbott for sound quality, prompt delivery and fair prices.

THE ABBOTT BALL CO.
1058 New Britain Avenue
HARTFORD, CONNECTICUT

ABBOTT
BEARING BALLS

pered, and with its prosperity, Pittsburgh has more firmly than ever implanted itself in the public mind as the "Steel City."

Automobile Production

(Continued from page 22)

are proverbially Yankee horse traders. Prices for steel, rubber, copper, etc. as paid by the automobile makers represent not only rock-bottom, but sometimes sub-stratum prices. This, however, is one statistic that is closely guarded, and the purchasing agents who have in the past occasionally stumbled upon such quotations at \$3 or more per ton below the best prices they themselves were able to obtain have found the information sadly lacking in any barometric significance of general application.

Why Do Purchasing Agents Remain Unconscious?

(Continued from page 20)

But at these meetings, just what definite and practical steps do we take to better our status? Do we lay plans to make the business world more conscious of the true importance of our profession? Do we devise ways and means for putting our departments on a par with other major departments in official recognition? Do we take a tip from the successful promotional procedure of the S. & A. Managers and thereby make ourselves more impressive as individuals in the eyes of outside salesmen, our fellow executives and our big bosses?

To all these questions I must sadly answer, "No!"

And so we elect to remain—in the eyes of others and no matter how untrue—executives of secondary importance.

So well have we succeeded in building up this opinion, so long through our own acts have we maintained it—that it is now held automatically by all from President to Janitor.

Permit me to prove this assertion by citing an example right here in the Autopoint offices. It is a pif-


COILED WIRE SPRINGS

WIRE FORM SPECIALTIES



Springfield, Ohio, U. S. A.

*"Where Your Patronage
Is Appreciated"*



TRADE MARK

**ALUMINUM OXIDE
SILICON CARBIDE
CORUNDUM
(AFRICAN)
TURKISH EMERY**

Refiners and Makers
of
**ABRASIVE GRAINS
AND
FLOURS**

AMERICAN ABRASIVE COMPANY
WESTFIELD, MASS.

It's true!
**NO DRAFTS...
NO COLDS**
from this *Amazing Fan*



VICTOR NO-DRAFT FANS

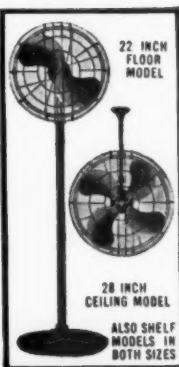
"The Finest Fans Ever Built"

NOW—no need to choose between refreshing, cooling breezes and the risk of catching cold. Patented Victor "Breeze-Spreader" diffuses the air stream—circulates it to all parts of the room—and eliminates the dangerous drafts and sudden blasts. Only Victor provides heat relief with complete safety. See the famous Ribbon Test before you buy a fan.

A COMPLETE LINE All sizes..All types

No matter what your fan requirements, there's a Victor model perfectly fitted to the need. Desk types from 8 to 16 in.; stationary and oscillating; overhead fans and big, powerful 22 and 28 in. high velocity air circulators for economical cooling of large areas. Every number is a mechanical masterpiece with many exclusive features—built to give long, satisfying service.

ASK YOUR JOBBER



VICTOR TORNADO
HIGH VELOCITY FANS



OVERHEAD TYPE CUTS
COOLING COSTS

SEND TODAY FOR CATALOG
Get the whole Victor story before you buy a fan. Learn all about the Breeze-Spreader and the famous Ribbon Test that proves—No-Draft Action. Entire line shown in new catalog—write for your copy today.

VICTOR ELECTRIC PRODUCTS, INC.
750 Reading Road Cincinnati, Ohio
MAKERS OF VICTOR VENTILATING FANS

fling thing in itself—yet admirably illustrative of my point. Bulletins, class publications, business magazines and other matter containing valuable information, are passed from executive to executive. A methodical routing is obtained by impressing the names in order on such matter with a rubber stamp. Well—my local fame can be guessed with fair accuracy from the fact that the designation, "C. L. Leighton," appears away down on the list, and even below that of our Credit Manager. No, I am not peeved. It is a patent impossibility to put all names at the top of the list. But what burns me up is the suspicion that mere chance alone did not place by name at the very bottom.

It is conceded by the average Sales Manager that the P.A. has the ability to order a dozen standard sample cases for use by his men. That is, if he has provided the P.A. with detailed specifications and diagrams. Otherwise he greatly fears that the P.A. may surprise him by obtaining some nifty little zipper bags suitable for use by female shoppers.

Likewise the erudite Advertising Manager is hopeful that the P.A., even with his limited mental capacity, will finally succeed in obtaining, say for instance, a gross of A B C blocks—that is, if the A.M. carefully indicates on which one of the six faces of the block it is proper to locate the letter "A."

The future is dark for us, Brothers. Our cause is hopeless. Long ago our faculty to envision through imagination became atrophied. Thus we cannot, even in childish fancy, conceive of a betterment in our status. To us, the words "enthusiasm" and "élan" are but terms for a mysterious mental state we do not understand—forms of strange elation and hope that are possessed only by members of the Sales and Advertising Departments.

Like a yogi, the average Purchasing Agent is rapt in his ancient dreaming — waiting supinely and hoping for naught but the inevitable Nirvana.



MILFORD Selective Band Saw Service

Blades exactly suited for every metal cutting need.

MILFORD "R S" BLADE
for cutting Stainless, High Speed and Tool Steels.

MILFORD "C C" BLADE
for cutting non-ferrous metals and general cutting.

*Correct steel, set and temper
for all requirements.*

THE HENRY G. THOMPSON & SON CO.
NEW HAVEN, CONN.



NEW PRODUCTS & IDEAS

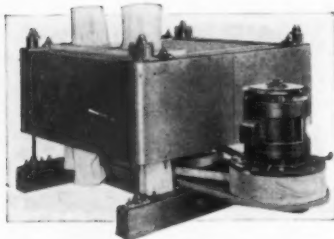


RENEWABLE INDICATOR FUSE

No. 379

THE FUSE ILLUSTRATED above is said to be the first complete line of a renewable type incorporating the feature of a neon light indicator permanently attached, thereby eliminating guesswork or trial in determining which fuse has blown. The tiny lamp, which glows as a visual signal when the renewable cartridge fuse has blown, is rugged, long lasting, and uses a negligible amount of current. It is encased in a rigidly constructed handle which also serves as a convenient fuse puller. The fuses themselves are accurately rated and are listed by Underwriters' Laboratories.

See coupon below



GYRATORY SIFTER

No. 380

A SMALL COMPACT MACHINE for uniform grading and sifting of cereals, chemicals, non-abrasive mineral products, and similar materials. Standard models are built with two or three sieves, each having 5 square feet of cloth surface; floor space required is $40\frac{1}{4} \times 46\frac{1}{2}$ inches, including motor, overall height $27\frac{5}{8}$ inches. It can also be built for making up to six separations, flowed in several different ways. Operates by direct connection to a light socket of either 110 or 220 volts. The body is durably built of aluminum, and the hanger rods have rubber mountings, providing flexibility and quiet operation.

PURCHASING

11 West 42nd St.
New York, N. Y.

Please send complete data on the New Products listed by number below:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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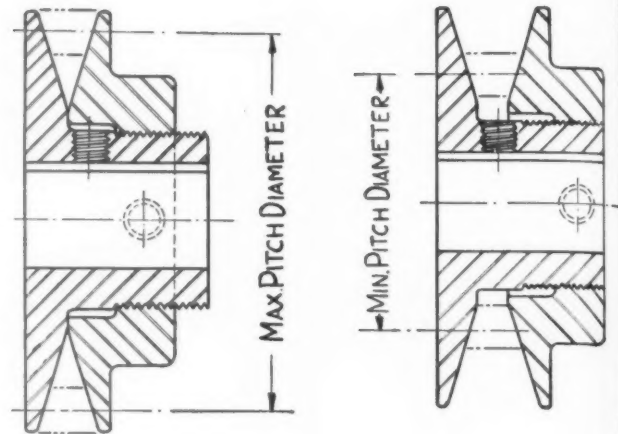
Name.....

Company.....

Address.....

City.....State.....

PAGE 56



ADJUSTABLE SHEAVE

No. 381

AJUSTABILITY OF effective pulley diameter is the feature of this new sheave for V- belts. One flange of the sheave is assembled on threads on the hub, so that it can be moved forward or back, thus permitting an adjustment of approximately 25% in diameter as shown by the illustrations, which show both the maximum and minimum diameter positions. The desired setting is maintained by means of two set screws. It is available in various sizes, to specification, and in capacities ranging from fractional to $1\frac{1}{2}$ hp. Also in a dual design with a single center flange and two separately adjustable side flanges on a double hub for driving a pair of belts.

See coupon at left

AIR CIRCULATOR

No. 382

THIS SCIENTIFICALLY designed fan is more than an agitator. It is constructed to draw into circulation all the varying layers of stagnant air, projecting and mixing them in a pulsating, turbulent rotary beam, which revitalizes the atmosphere and recombines the elements in a proper ratio. The pulsations also serve to throw off fresh currents of the reconditioned air, keeping up a constant circulation free from drafts, dead air pockets, or "discomfort zones," and uniform in temperature.

See coupon at left



PAINT COMPOUND FOR DAMP SURFACES

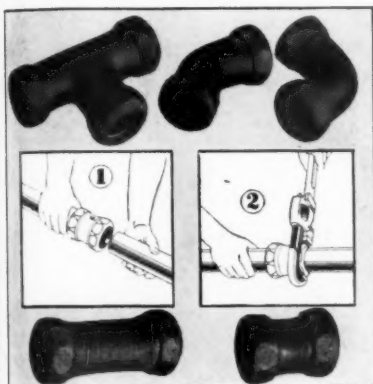
No. 383

PAINING OF DAMP or rain-wet surfaces has heretofore been unsatisfactory and has involved the inconvenience and expense of delay while waiting for sunshine or artificial heat.

PURCHASING

to put the surface in suitable condition. A new compound is now offered which is said to overcome this difficulty. It may be mixed with paints, lacquers, varnishes, or primers, in the proportion of 1 part of compound to 19 parts paint. Its action is to absorb the moisture and then separate from the paint, forcing itself (with absorbed water) through the paint to the top of the film where it decomposes and evaporates completely. The resulting paint film is secure against reversible action and is protected against peeling or blistering due to water content, and the under surface is protected against rust and corrosion. Successive coats of similarly compounded paints can be applied with the same effect.

See coupon page 56



PIPE FITTINGS

No. 384

A NEW STYLE fitting that permits the use of plain end pipe without the necessity of threaded connections greatly simplifies the process of installation and maintenance on industrial piping systems, since these fittings can be applied in a few seconds time and with only one tool—a wrench. These fittings are entirely self contained. The pipe ends are inserted and two follower nuts are screwed up on the threaded body of the fitting. This compresses two resilient rubber-compound gaskets tightly around the pipe, effectively sealing the line under all conditions. The resulting joint is tight, and safely absorbs normal deflection and in-and-out movements of the pipe. The fitting is made in a variety of styles to fit all conditions—extra-long body, 45° and 90° ells, tee, adapter, and for threaded branches.

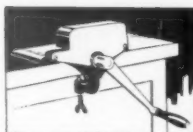
See coupon page 56



GROUP SHOWER

No. 385

THE GROUP SHOWER shown here is a full circular unit accommodating five users at a time, each in a separate roomy compartment with privacy assured by means of twin doors for each compartment. The design affords marked economies in installation since only three plumbing connections are required for the complete set-up—two supplies and one drain. A semi-circular model with three compartments is also available. Maximum cleanliness with minimum effort is assured by the complete absence of corners and dirt-collecting pockets. The unit is durably



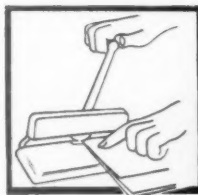
FASTNRITE a new idea in PAPER FASTENERS

IT WAS bound to come and here it is—FASTNRITE—the new day, new way paper fastener that binds without staples, thread or glue.

FASTNRITE has literally dozens of applications throughout factory and office. Fastens 2 to 12 sheets of paper (up to 20 sheets of onion skin), seals pay envelopes, small parts envelopes and paper bags of almost every description.

FASTNRITE also binds circulars, enclosures and papers of all kinds. It needs no refills—always ready to operate—the first cost is the last. Saves space in files, prevents mutilation of papers, operates silently and never gets out of order.

SEE FASTNRITE at your stationers or write us direct for illustrated folder and demonstration sheets.



PROGRESSIVE MECHANICAL CORP.
630 FIFTH AVENUE, NEW YORK.

GEARED

to meet the urgent demands
OF YOUR PRODUCTION LINE



Consider these points when you look for a dependable source of spring parts:

INTELLIGENT HANDLING OF SPECIFICATIONS
PROMPT, CERTAIN ACTION IN TOOLING UP
DELIVERIES TO MEET YOUR PRODUCTION
UNIFORM QUALITY FROM START TO FINISH
ONE SOURCE OF SUPPLY FOR MANY PRODUCTS
EFFICIENT PLANNING FOR GREATEST ECONOMY

Controlled quality from steel to finished part is Barnes' answer to the day's demand for production and still more production. A modern steel mill owned and operated by Barnes is capable of producing stock for almost any requirement, every day. Large amounts are always on hand for quick conversion into the kind of spring you need.

The Wallace Barnes Company . BRISTOL, CONNECTICUT
DIVISION OF ASSOCIATED SPRING CORPORATION

SPRINGMAKERS FOR MORE THAN THREE QUARTERS OF A CENTURY
Barnes-made SPRINGS

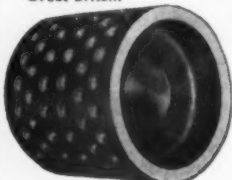
WANT TO BUY A "CHAIN DOG" OR A "PUPPY DOG"?

Queer terms, those, but everybody in the lumbering or logging industry knows what they mean. The job of The McKay Company, for more than fifty years, has been to study the Chain needs of thousands of different industries. There is hardly *any* industry today that is not well acquainted with the A-No. 1 *quality*—produced by "McKay's 50 years of knowing how."

Send your Chain inquiries or orders to . . .

THE MCKAY COMPANY
MCKAY BUILDING PITTSBURGH, PA.
(Formerly U. S. Chain & Forging Co.)

Pat'd U.S.
Canada
Great Britain



30 DAY FREE TRIAL OFFER.

NO BELT SLIPS with VACUUM CUP METAL PULLEYS

GUARANTEED to:

Eliminate belt slippage and power loss because the belt is sealed to pulley at vacuum contacts . . . increase life of belts and equipment . . . enable machines to take larger cuts and operate at maximum capacity . . . wear indefinitely . . . keep belts from flying off . . . Sizes from 2" up to 72" . . . recommended for short center drives . . . Try one at our risk on your worst drive.

Vacuum Cup Metal Pulley Co., Inc. 1010 Ford Bldg.
Detroit, Mich.



Bituminous Coal

MINES: Scalp Level, South Fork, Hastings and La Rayne Districts of Penna., and Fairmont District of West Virginia.

SIZES: Lump — Egg — Nut — Pea — Stoker — Mine Run—Especially Prepared Coal for Pulverizing.

CORTRIGHT COAL COMPANY

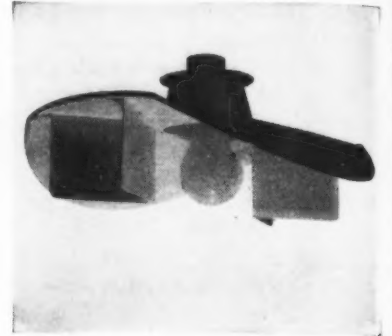
PENNA. BLDG.
PHILADELPHIA

ONE BROADWAY
NEW YORK

constructed with framework of cold-drawn seamless steel tubing, doors and partitions of patent-leveled cold-rolled 16 gauge steel. The finish is baked synthetic enamel in a practical gray color.

See coupon page 56

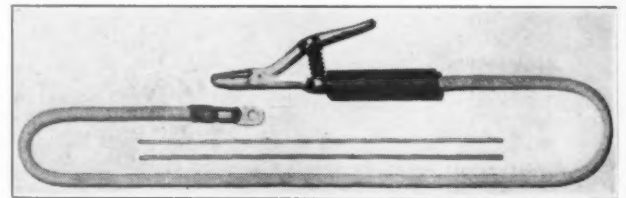
LIGHTING FIXTURE



No. 386

THE REFLECTOR IN this new lighting fixture has been designed for maximum effectiveness when used in storerooms to illuminate bins or stacks of material. The sides are bent down to direct the light into bins and to cut off stray light that would otherwise be lost. Two triangular vanes are so placed as to direct light in a vertical plane to either side, at the same time shielding the eyes of operators in the narrow aisles. The unit is made of 24 gauge Armco iron, with a ground coat of porcelain, two white coats inside and one coat of green outside. The socket cover is a 16 gauge steel outlet box cover slotted for attachment to a 4-inch outlet box and arranged to take a standard sign-receptacle socket.

See coupon page 56



ELECTRODE HOLDER

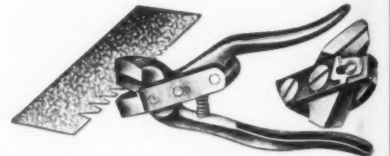
No. 387

THIS NEW HOLDER will grip an electrode securely at any angle, providing access to difficult places without shortening the jaws on the work. The tension spring that holds the jaws on the work is thoroughly insulated. Area of contact assures good conductivity and eliminates the chance of performance failure at this point. The lower jaw and handle are ventilated so that the latter remains comparatively cool. An extended lever on the upper jaw permits ready release of an electrode stub. Available as a complete assembly of holder and cable, or as a separate holder unit for solder or screw connection to a cable.

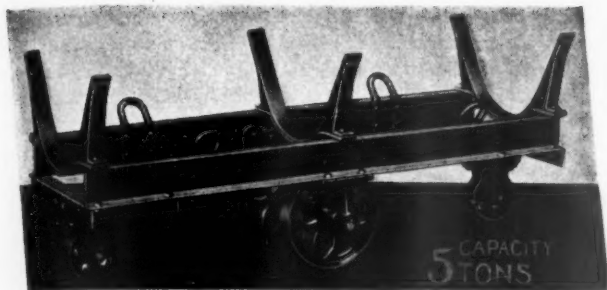
See coupon page 56

NOTCHING TOOL

No. 388



THIS NOTCHING TOOL for use on thin sheet metal prior to flanging is particularly adapted to field work in the fabrication of air ducts, downspouts, flashing, etc. The cutting dies are of tool steel, and the handles are steel forgings. Size of notch is controlled by a depth gauge, locked in position with a screw. The jaws are normally held in the open position by means of a spring.



HAND TRUCK FOR BAR AND PIPE

No. 389

SPECIALY DESIGNED for carrying bar or pipe stock or structural shapes, this hand truck can also be carried by an overhead crane by means of four steel loops attached to the side members. The frame is of 4-inch channels, with cradles to support the load. The center wheels are 14 inches in diameter, with a 3-inch face. The balancing casters at each end are 8 inches in diameter. Hyatt roller bearings are used throughout. Capacity, 5 tons. Standard length, 5 feet.

See coupon page 56



PLATING BASKET

No. 390

A COMPLETE NEW LINE of dipping baskets and trays for plating use is designed in all-welded construction and with cross-member reinforcement at points of greatest stress, thus achieving unusual strength and long life, and the ability to carry heavy loads without bulging. Baskets are furnished with rigid or swivel handles, trays with either solid or mesh sides. Both baskets and trays are available in steel, brass, copper, aluminum, monel metal and nickel chrome, in standard shapes, gauges of wire and mesh; also to special specification. The line also includes a rigid bail type steel basket covered with hard or soft rubber highly resistant to all acids except straight nitric and sulphuric.

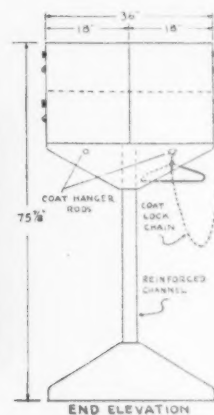
See coupon page 56



ELECTRIC DRILL

No. 391

THIS NEW ONE-HALF-INCH capacity electric drill has been specially designed for the use of contractors, automotive mechanics, plumbers, oil burner installers and other service mechanics. It is suitable for drilling wood or metal, has gears of



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specially heat treated nickel steel, and a universal motor mounted on seal type bearings. The housing is of a strong aluminum alloy, with a built-in pocket which holds the chuck key securely and conveniently. The drill has a combination spade and breast plate handle, and a pipe handle that may be detached for working in close quarters. Length, 15 1/2 inches. Weight, 12 1/2 pounds.

See coupon page 56



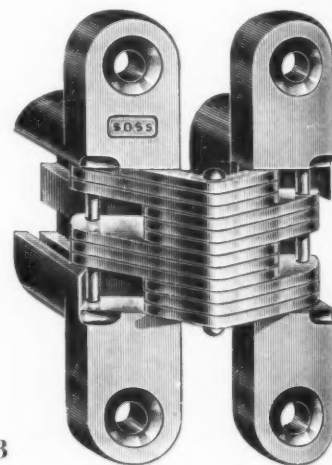
PYROMETER FOR MOLTEN METALS

No. 392

CONVENIENCE OF ADJUSTMENT is the feature of this new thermo-electric pyrometer for accurate calibration of molten metals. Customary swivel joints and brush or friction contacts have been eliminated, thus minimizing the possibility of dirt deposits that hamper accurate readings. The new flexible end is adjustable to 180 degrees. The pistol-grip handle and angled position of the reading dial make for ease, speed and accuracy in readings. Thumb-screw adjustment on face of dial maintains perfect calibration without the necessity for factory check-up. All parts are interchangeable, for economy of maintenance.

See coupon page 56

**INVISIBLE
HINGE**



No. 393

THIS NEW TYPE hinge is adaptable for use on all type doors, from furniture up to the heaviest of interior doors and multi-doors such as folding partitions. It consists of a series of heat-treated plates and pins operating in a track of rigid truss construction. It is said to work easily and is non-sagging; completely invisible and tamper-proof when closed; permits of modern decorative treatment on both sides of the door, unbroken by any hinge line or projecting part.

See coupon page 56

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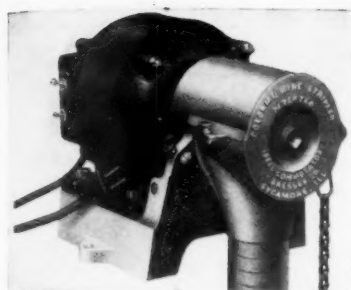
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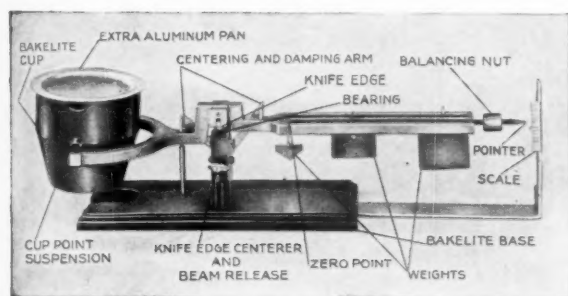


WIRE STRIPPER

No. 394

THIS NEW WIRE stripper, suitable for use in large or small shops to good advantage, operates on the principle of centrifugal action, thus eliminating the need for springs and levers. The double-edge blades in the stripping chamber are of fine tool steel and can be resharpened indefinitely. They fly outward in motion, and are adjustable to within .001" by means of a dialed micrometer gauge. Insulation is cut clean, the wire properly twisted and polished ready for terminals or soldering. Operates either clockwise or counter-clockwise. Can be set for any length of strip up to 2 inches. A flexible metal tube carries waste to a disposal container. Equipped with a 1/4 H.P. reversible type motor, it requires no special installation and can be set up at any convenient point.

See coupon page 56



PORTABLE BALANCE

No. 395

RECENT IMPROVEMENTS in the design of this portable balance have increased its serviceability and ruggedness, while maintaining the high degree of accuracy characteristic of earlier models. Constructed of Bakelite and light metal alloys, it is only about 12 inches long and weighs less than a pound. It can easily be carried in an overcoat pocket, and there are no loose weights to be lost. It weighs up to 100 grams, or about 4 ounces, and has a sensitivity of 1/100 of a gram. Available in either the metric or the apothecary system of weights.

See coupon page 56

The Riverside Metal Co., Riverside, N. J., has issued a revised edition of their booklet on nickel silver alloys, available in sheet, strip, wire, rods, circles, bars, blanks, and ingots, for use in a wide variety of commercial applications. The booklet presents detailed information regarding a variety of alloys, their special characteristics and purposes. It is profusely illustrated with photographs of products and parts made of this material. 48 pages, attractively and conveniently arranged for reference.

"Glorified Light" is an unusual booklet issued by the Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh, Penna. It contains articles by Dr. Matthew Luckiesh, Director of the General Electric Co. Lighting Research Laboratory, and Samuel G. Hibbern, Director of Applied Lighting, Westinghouse Lamp Co., a treatise on paint and interior wall finishing as an adjunct to the lighting problem, and detailed information regarding three particular systems of interior finishing specially designed for effective use under varying light conditions.



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